Supreme Court of the United States

OCTOBER TERM, 1965

No. 58

EDWARD J. BRENNER, COMMISSIONER OF PATENTS, PETITIONER

vs.

ANDREW JOHN MANSON

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

INDEX

IN THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

PATENT APPEAL DOCKET
No. 7140

IN THE MATTER OF THE APPLICATION OF ANDREW JOHN MANSON

APPEAL FROM BOARD OF APPEALS

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* * * *

[fol. 1]

* * * *

Applicant: Andrew John Manson; Serial 3,693; Filed: 1960 January 20; For: PREPARATION OF 2-METHYL-17α-LOWER-ALKYLANDROSTAN-17β-OL-3-ONES

PETITION OF APPEAL UNDER RULE 25—filed February 5, 1963

To the United States Court of Customs and Patent Appeals:

Your petitioner, Andrew John Manson, of the Town of North Greenbush, County of Rensselaer, State of New York, respectfully represents:

That he is the original and first inventor of certain new and useful improvements in Preparation of Organic Compounds (Title amended to: Preparation of 2-Methyl-17α-Lower-Alkylandrostan-17β-Ol-3-Ones).

That on the 20th day of January 1960, in the manner prescribed by law, he presented his application to the Patent Office, praying that a patent be issued to him for the said invention.

That such proceedings were had in said Office upon said application;

That on the 26th of September 1962 an adverse decision was rendered by the Board of Appeals affirming the rejection of the Primary Examiner and a patent for said invention as embodied in claims 2 and 3 was refused him.

That on the 23rd day of November 1962, your petitioner, pursuant to Section 142 of Title 35, United States Code, gave notice to the Commissioner of Patents of his appeal to this honorable court of his refusal to issue a [fol. 2] patent to him for said invention upon said application as aforesaid, and filed with him in writing, the special reasons of appeal hereinafter included.

That on 1963 January 9 the Commissioner of Patents extended the time for filing this Petition of Appeal until 1963 February 11.

That the Commissioner of Patents has furnished him a certified transcript of the record and proceedings relating to said application for patent, including the notice and reasons of appeal, which transcript is being transmitted to this court directly by the Patent Office for filing herewith and is to be deemed and taken as a part hereof.

Wherefore your petitioner prays that his said appeal may be heard upon and for the reasons assigned therefore to the Commissioner as aforesaid, and that said appeal may be determined and the decision of the Commissioner be revised and reversed, that justice may be done in the premises.

A check for the filing and docketing fee, in the amount of Fifteen Dollars ($15.00) is attached.

ANDREW JOHN MANSON

By LAURENCE AND LAURENCE
753 Warner Building
Washington 4, D. C.
Attorneys for Manson

Of Counsel:

DEAN LAURENCE
HERBERT I. SHERMAN

[File Endorsement Omitted]

CERTIFICATE OF COMMISSIONER OF PATENTS TO RECORD

U. S. DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

February 4, 1963
(Date)

THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of Certain Requested Docu- [fol. 3] ments, said Documents being the Record for the United States Court of Customs and Patent Appeals, in the matter of the

Pending Application of
Andrew John Manson,

Filed January 20 1960, Serial Number 3,693,
for
Preparation of 2-Methyl-17α-Lower-Alkylandrostan-17β-ol-3-Ones.

By authority of the
COMMISSIONER OF PATENTS

W. G. LANHAM JR.
(SEAL) Certifying Officer.

APPLICATION OF ANDREW JOHN MANSON, FILED JANUARY 20, 1960, SERIAL NUMBER 3,693, FOR PREPARATION OF ORGANIC COMPOUNDS

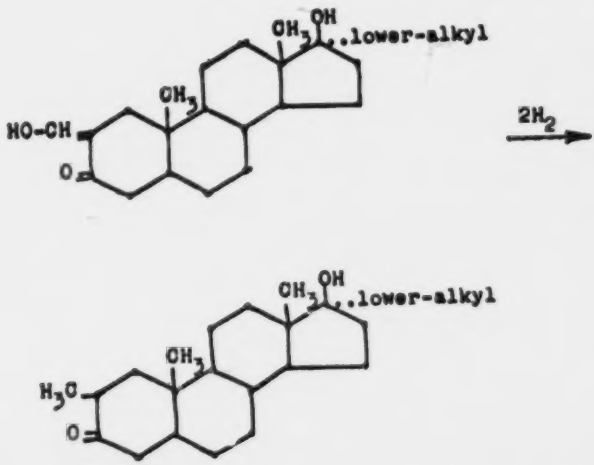
This invention relates to a new method of preparation of 2-methyl-17α-lower-alkylandrostan-17β-ol-3-ones (2-methyl-17α-lower-alkyl-dihydrotestosterones). The method comprises catalytically hydrogenating a 2-hydroxymethylene-17α-lower-alkylandrostan-17β-ol-3-one.

The known method for preparing 2-methyl-17α-lower-alkylandrostan-17β-ol-3-ones from the corresponding 17α-lower-alkylandrostan-17β-ol-3-ones involves several steps, e.g., introducing an ethoxyoxalyl group into the 2-position by reacting the 3-oxo-steroid with ethyl oxalate in the presence of a strong base, methylating with methyl iodide,

and finally cleaving the ethoxyoxalyl group by reversal of the oxalate condensation.

It has now been found that the introduction of the 2-methyl group can be realized in a fewer number of steps by introducing a hydroxymethylene group into the 2-position by reacting a 17α-lower-alkylandrostan-17β-ol-3-one [fol. 4] with a lower-alkyl formate in the presence of a strong base, e.g., sodium methoxide or sodium hydride, under anhydrous conditions and then catalytically hydrogenating the hydroxymethylene derivative whereby the double bond is reduced and the terminal hydroxy group is replaced by hydrogen. This is equivalent to the reduction of a formyl (O=CH—) group to a methyl group.

[fol. 5]



The hydrogenation process of the invention takes place at ordinary temperatures and at atmospheric or slightly elevated pressure in an inert solvent. The catalyst employed can be any of those known to reduce formyl groups to methyl groups and includes such catalysts as palladium, e.g., palladium on carbon and palladium hydroxide on strontium carbonate, or platinum, e.g., platinum oxide.

Stereochemical considerations indicate that the hydrogenation of the 2-hydroxymethylene steroid initially produces a 2-methyl group in the β-configuration which has the unstable, axial conformation. During purification procedures, however, especially if alkaline treatment is involved, the product is largely epimerized to the 2α-methyl configuration having the stable, equatorial conformation.

The alkyl group in the 17α-position preferably has from one to about three carbon atoms and thus includes methyl, ethyl, propyl and isopropyl.

[fol. 7] The following examples will further illustrate the invention without limiting the latter thereto.

Example 1

(a) *2-Hydroxymethylene-17α-methylandrostan-17β-ol-3-one.*

A solution of 20.7 g. of 17α-methylandrostan-17β-ol-3-one in 500 ml. of benzene was added to sodium methoxide (prepared by dissolving 15.0 g. of sodium in 250 ml. of absolute methanol, concentrating the solution and drying the residue for one hour at 150-160°C. and 15 mm.). Ethyl formate (48.8 g.) was then added with stirring in a nitrogen atmosphere. The reaction mixture was stirred for four hours longer at room temperature, allowed to stand for about fifteen hours, stirred for two hours longer and then poured into water. The benzene layer was separated and the aqueous layer extracted with benzene. Nitrogen was bubbled through the aqueous layer to remove benzene, and the mixture was filtered. Concentrated hydrochloric acid and ice were added to the filtrate until the mixture was acid to Congo Red, and the product was extracted with chloroform. The chloroform extracts were washed with water, dried over anhydrous sodium sulfate, filtered and concentrated *in vacuo* to a volume of 80 ml., whereupon there separated 14.89 g. of 2-hydroxymethylene-17α-methylandrostan-17β-ol-3-one, m.p. 179-183°C. (uncorr.). A sample when recrystallized from an ether-methanol mixture and dried at 80°C. *in vacuo* had the m.p. 185-190.5°C. (corr.), $[\alpha]^{25}_{D}=+22.3°$ (1% in chloroform); ultraviolet maximum at 282 mμ (E=10,300).

Anal. Calcd. for $C_{21}H_{32}O_3$: C, 75.86; H, 9.70.
Found: C, 76.10; H, 9.53.

(b) *2α,17α-Dimethylandrostan-17β-ol-3-one.*

2-Hydroxymethylene-17α-methylandrostan-17β-ol-3-one (4.00 g.) was dissolved in 200 ml. of 95% ethanol, 0.50 g. [fol. 8] of 22% palladium hydroxide on strontium carbonate catalyst was added, and the mixture was subjected to hydrogenation at room temperature and about 50 lbs. per sq. in. pressure. After about one and one-half hours

two molecular equivalents of hydrogen had been absorbed, and the catalyst was removed by filtration. The filtrate was concentrated *in vacuo* on a steam bath, the residue was dissolved in ethyl acetate and a little ether, and the solution filtered free of a fine suspension and concentrated to dryness *in vacuo*. The residue (4.09 g.) was dissolved in a benzene-pentane (1:1) mixture and subjected to chromatography on 140 g. of acid-washed alumina. The column was eluted with 44 400 ml. portions of benzene-pentane (1:1). The crystalline material (1.91 g., m.p. 121-136°C.) obtained from fractions 4 to 44 was recrystallized successively from ether-pentane, methanol-water, and ether-pentane and dried for eight hours at 95°C. *in vacuo* to give 2α,17α-dimethylandrostan-17β-ol-3-one in the form of colorless plates, m.p. 138.6-142.4°C. (corr.), $[\alpha]_D^{25} = +8.82° \pm 0.2°$ (1% in chloroform); infrared maxima at 2.92 and 5.85 μ, and a shoulder at 5.86μ indicating the possible presence of some of the 2β-methyl stereoisomer.

Anal. Calcd. for $C_{21}H_{34}O_2$: C, 79.19; H, 10.76.
Found: C, 79.10; H, 10.65.

Example 2

2α-Methyl-17α-ethylandrostan-17β-ol-3-one can be prepared by replacing the 17α-methylandrostan-17β-ol-3-one in Example 1, part (a) by a molar equivalent amount of 17α-ethylandrostan-17β-ol-3-one.

Example 3

2α-Methyl-17α-propylandrostan-17β-ol-3-one can be prepared by replacing the 17α-methylandrostan-17β-ol-3-one in Example 1, part (a) by a molar equivalent amount of 17α-propylandrostan-17β-ol-3-one.

[fol. 9] *Example 4*

2α-Methyl-17α-isopropylandrostan-17β-ol-3-one can be prepared by replacing the 17α-methylandrostan-17β-ol-3-one in Example 1, part (a) by a molar equivalent amount of 17α-isopropylandrostan-17β-ol-3-one.

* * * *

For Claim 2, see Rejected Claim 2.

OATH, POWER OF ATTORNEY, AND PETITION

Being duly sworn, I, ANDREW JOHN MANSON

depose and say that I am a citizen of Canada residing at Town of North Greenbush, Rensselaer County, New York; that I have read the foregoing specification and claims and I verily believe I am the original, first, and sole inventor of the invention in PREPARATION OF ORGANIC COMPOUNDS

described and claimed therein; that I do not know and do not believe that this invention was ever known or used before my invention thereof, or patented or described in any printed publication in any country before my invention thereof, or more than one year prior to this application, or in public use or on sale in the United States more than one year prior to this application; that this invention has not been patented in any country foreign to the United States on an application filed by me or my legal representatives or assigns more than twelve months before this application; and that no application for patent on this invention has been filed by me or my representatives or assigns in any country foreign to the United States, except as follows:

NONE

And I hereby appoint Elmer J. Lawson, B. Woodrow Wyatt, Thomas L. Johnson, Robert K. Bair, and R. Clifford Bourgeois, Registry Nos. 15,355, 16,521, 16,687, 16,893, and 18,874, respectively, all c/o Sterling-Winthrop Research Institute, Rensselaer, New York, or any of them my attorneys or agents with full power of substitution and revocation to prosecute this application and to transact all business in the Patent Office connected therewith; and request that all communications be addressed to the said Elmer J. Lawson.

Wherefore I pray that Letters Patent be granted to me for the invention described and claimed in the foregoing specification and claims, and I hereby subscribe my name to the foregoing specification and claims, oath, power of attorney, and this petition, this

18th day of January, 1960.

Inventor Andrew (First name) John (Middle initial) Manson (Last name)

Post Office Address { Box 126B
R.D. 1
Rensselaer, New York

State of New York
County of Rensselaer } SS

Before me personally appeared Andrew John Manson, *to me known to be the person described in the above application for patent, who signed the foregoing instrument in my presence, and made oath before me to the allegations set forth therein as being under oath, on the day and year aforesaid.*

[SEAL]

Anna C. Card
Notary Public

ANNA C. CARD
Notary Public State of New York
Qualified in Albany County
Commission Expires March 30, 1960

[fol. 13]

AFFIDAVIT OF MANSON, DATED JANUARY 18, 1960

State of New York)
) ss.:
County of Rensselaer)

I, ANDREW JOHN MANSON, being duly sworn, depose and say:

THAT I am a citizen of Canada, residing at Town of North Greenbush, County of Rensselaer, State of New York;

THAT I am the applicant in the above-identified application, filed of even date herewith, under Agents' Docket Designation D.N. 4323;

THAT I made the invention described in the above-identified application in the United States of America prior to December 17, 1956, the priority date of U.S. Patent 2,908,693, issued October 13, 1959 to Syntex S.A., assignee of Howard J. Ringold and George Rosenkranz:

And further I say not.

ANDREW JOHN MANSON

Sworn to and subscribed before me this 18th day of January, 1960.

ANNA C. CARD
Notary Public, State of New York
Qualified in Albany County
(SEAL) Commission Expires March 30, 1960

LETTER REQUESTING AMENDMENT, DATED MARCH 31, 1960

Hon. Commissioner of Patents
Washington 25, D. C.

Sir:

In response to the Office Letter of March 10, 1960, please amend the above-identified application as follows:

Change the title to read: —PREPARATION OF 2-METHYL-17α-LOWER-ALKYLANDROSTAN-17β-OL-3-ONES—.

* * * *

[fol. 14] *REMARKS*

* * * *

Respectfully submitted,

ANDREW JOHN MANSON

By THOMAS L. JOHNSON
His Agent

March 31, 1960

AFFIDAVIT OF MANSON, DATED MARCH 30, 1960

State of New York)
) ss.:
County of Rensselaer)

I, ANDREW JOHN MANSON, being duly sworn depose and say:

THAT I am a citizen of Canada, residing at Town of North Greenbush, County of Rensselaer, State of New York;

THAT I am the applicant in the above-identified U. S. patent application, Serial No. 3693, filed January 20, 1960;

THAT I made the invention described in the above-identified application in the United States of America prior to December 17, 1956, the priority date of U.S.

Patent 2,908,693, issued October 13, 1959 to Syntex S.A., assignee of Howard J. Ringold and George Rosenkranz, as evidenced by the following acts:

THAT, prior to December 17, 1956, I prepared 2-hydroxy-methylene-17α-methylandrostan-17β-ol-3-one as follows, this procedure being the same as described in Example 1(a) at page 3 of the above-identified application: A solution of 20.7 g. of 17α-methylandrostan-17β-ol-3-one in 500 ml. of benzene was added to sodium methoxide (prepared by dissolving 15.0 g. of sodium in 250 ml. of absolute methanol, concentrating the solution and drying the residue for one hour at 150-160°C. and 15 mm.). Ethyl formate (48.8 g.) was then added with stirring in a nitrogen atmosphere. The reaction mixture was stirred for four hours longer at room temperature, allowed to [fol. 15] stand for about fifteen hours, stirred for two hours longer and then poured into water. The benzene layer was separated and the aqueous layer extracted with benzene. Nitrogen was bubbled through the aqueous layer to remove benzene and the mixture was filtered. Concentrated hydrochloric acid and ice were added to the filtrate until the mixture was acid to Congo Red, and the product was extracted with chloroform. The chloroform extracts were washed with water, dried over anhydrous sodium sulfate, filtered and concentrated *in vacuo* to a volume of 80 ml., whereupon there separated 14.89 g. of 2-hydroxymethylene-17α-methylandrostan-17β-ol-3-one, m.p. 179-183°C. (uncorr.). A sample when recrystallized from an ether-methanol mixture and dried at 80°C. *in vacuo* had the m.p. 185-190.5°C. (corr.), $[\alpha]^{25}_{D}=+22.3°$ (1% in chloroform); ultraviolet maximum at 282 mμ (E=10,300).

Anal. Calcd. for $C_{21}H_{32}O_3$: C, 75.86; H, 9.70.
Found: C, 76.10; H, 9.53.

THAT the attached Exhibits A and B are photocopies of pages 155 and 157, respectively, of my notebook Man-A kept in the ordinary course of business and in my handwriting. The entries appearing in this notebook record were made prior to December 17, 1956. Exhibits A and

B show the preparation of 2-hydroxy-methylene-17α-methylandrostan-17β-ol-3-one by the above-described procedure;

THAT, prior to December 17, 1956, I prepared 2α,17α-dimethylandrostan-17β-ol-3-one as follows, this procedure being the same as described in Example 1(b) at page 4 of the above-identified application: 2-Hydroxymethylene-17α-methylandrostan-17β-ol-3-one (4.00 g.) was dissolved in 200 ml. of 95% ethanol, 0.50. g. of 22% palladium hydroxide on strontium carbonate catalyst was added, and the mixture was subjected to hydrogenation at room temperature and about 50 lbs. per sq. in. pressure. After about one and one-half hours two molecular equivalents of hydrogen had been absorbed, and the catalyst was re- [fol. 16] moved by filtration. The filtrate was concentrated *in vacuo* on a steam bath, the residue was dissolved in ethyl acetate and a little ether, and the solution filtered free of a fine suspension and concentrated to dryness *in vacuo*. The residue (4.09 g.) was dissolved in a benzene-pentane (1:1) mixture and subjected to chromatography on 140 g. of acid-washed alumina. The column was eluted with 44 400 ml. portions of benzene-pentane (1:1). The crystalline material (1.91 g., m.p. 121-136°C.) obtained from fractions 4 to 44 was recrystallized successively from ether-pentane, methanol-water, and ether-pentane and dried for eight hours at 95°C. *in vacuo* to give 2α,17α-dimethylandrostan-17β-ol-3-one in the form of colorless plates, m.p. 138.6-142.4°C. (corr.), $[\alpha]^{25}_{D}=+8.82° \pm 0.2°$ (1% in chloroform); infrared maxima at 2.92 and 5.85 μ, and a shoulder at 5.86 μ indicating the possible presence of some of the 2β-methyl stereoisomer.

Anal. Calcd. for $C_{21}H_{34}O_2$: C, 79.19; H, 10.76.
Found: C, 79.10; H, 10.65.

THAT the attached Exhibits C, D and E are photocopies of pages 174, 180 and 182, respectively, of my notebook Man-A kept in the ordinary course of business and in my handwriting. The entries appearing in this notebook record were made prior to December 17, 1956. Exhibits C, D and E show the preparation of 2α,17α-di-

methylandrostan-17β-ol-3-one by the above-described procedure;

And further I say not.

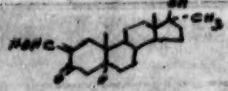
ANDREW JOHN MANSON

Sworn to and subscribed before me this 30th day of March, 1960.

ANNA C. CARD
Notary Public
State of New York
Qualified in Albany County
(SEAL) Commission Expires March 30, 1960

[fol. 17] EXHIBIT A TO AFFIDAVIT

Preparation of 2-Hydroxymethylene-17α-methylandrostanone (Cf. [illegible])



15.0 g. of Na (9 mols excess)
250 ml. of c.p. absolute MeOH.
600 ml. of benzene
20.7 g. of 17α-methylandrostane-17β-ol-3-one.
48.8 g. or 53.8 ml. of ethyl formate.

Na dissolved in alcohol. Solvs. sens. until solid NaNHc remained. Dried at 15 m.m. pressure for 1 hr at 150-160°C. Flask (1000 ml.) containing [illegible] was filled with N_2 and then fitted with [illegible] Stirred in 600 ml. of benzene and ethyl f[illegible] added under positive pressure of N_2. Rx. [illegible] immediately turned yellow. Contents of [illegible] mixture stirred at room temp. for 4 [illegible] then left overnight.

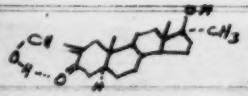
Rx. mixture stirred for additional 2 hrs. [illegible] no way little. Rx. mixture poured into [illegible] and extracted with benzene. Aqueous layer warmed until clear, filtered with aid of [illegible] and cooled below room temp. Then HCl was added until soln. gave blue colored [illegible] Extracted with $CHCl_3$ and $CHCl_3$ layer washed with water, dried (Na_2SO_4) filtered and conc. in [illegible] until volume was about 80 ml., crystal ppt. [illegible] and filtered, slo collected wt. = 14.89 g. m.p. [illegible] Sulfate conc. There remained 5.1 g. of [illegible] were dissolved in 50 cc. of MeOH, treated with [illegible] recrystallized from MeOH-H[illegible]

C[illegible] 4-17

Witnessed by [illegible]

[fol. 19] EXHIBIT B TO AFFIDAVIT

Preparation of 2-Hydroxymethylene-17α-methylandrostane-17β-ol-3-one (Compound [illegible])



A sample was prepared as a prospective [illegible] Rx from Ether-MeOH

Rx	Qty.	m.p.
I	5.00 g.	17[illegible]
II	~~[illegible]~~ 2.30 g.	13[illegible]
III	0.75	11[illegible]

Sample (0.78 g.) dried at [illegible]°C. [illegible] a prospective [illegible] sample. After [illegible] 104-112°C.

[redacted] Calc. for $C_{21}H_{32}O_3$ [illegible]

Carbon	75.96	76.[illegible]
Hydrogen	9.70	9.[illegible]

$[\alpha]_D^{25}$ = +22.3° (1% in $CHCl_3$)

corr. m.p. 185.2 - 190.9°C. [illegible]

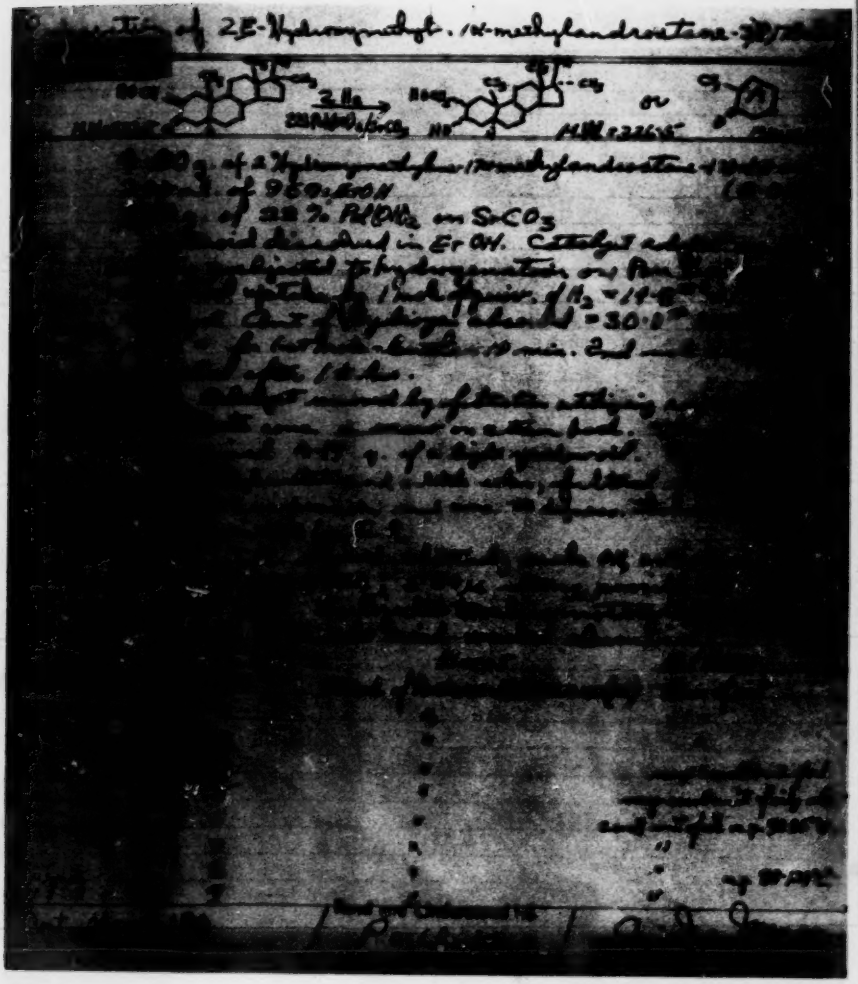
Read and Understood by
Read and Witnessed by

R. O. Clark

[redacted]

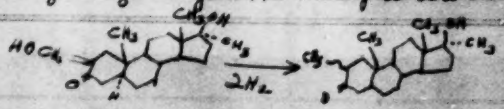
See Man E133 — [illegible]

[fol. 21] EXHIBIT C TO AFFIDAVIT



[fol. 23] EXHIBIT D TO AFFIDAVIT

Reduction of 2-Hydroxymethylene-1,10-methylandrostane-17[illegible]



Fractions	Eluent	Eluate
10	400 ml. Pentane-Benzene (1:1)	small amt of oil (m.p. [illegible])
11	"	"
12	"	" (m.p. [illegible])
13	"	"
14	"	"
15	"	" (m.p. [illegible])
16	"	"
17	"	"
18	"	"
19	"	" (m.p. [illegible])
20	"	"
21	"	"
22	"	" (m.p. [illegible])
23	"	"
24	"	"
25	"	"
26	"	" (m.p. [illegible])
27	"	"
28	"	"
29-32	41 "	"
32-[illegible]	[illegible] "	" (m.p. [illegible]).
34-[illegible]	10x "	"
44	"	"
45	400 ml. Benzene	"
46	"	" (m.p. 50-70°C.)
47-49	"	small amt of oil
50-51	"	trace of oil
52-[illegible]	"	nil

Case No. A 182
3693

Read and Understood by
R. O. Clinton

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[fol. 25] EXHIBIT E TO AFFIDAVIT

Reduction of 3-Hydroxypregnadienolone, ...methylandrostane-17β-ol-3-one (Co3 from Mo on Al2O3)

{Yanagita and Tsutsui, J.O.C. 21, ...

Fraction #		Eluent	Eluate
56-56	2X	400ml. Benzene-Ether (9:1)	trace of oil
57-61		"	nil
62		400ml. Benzene-Ether (1:1)	trace of oil
63-65	3X	"	xls. crystallizing ...
66-70	5X	"	trace of oil
71-75	5X	"	nil
76		400ml. ETHER	trace of oil
77-78	2X	"	trace of white ...
79-82	4X	"	trace of oil
83-89	2X	"	nil
90-92	2X	400ml. ETHER-MeOH (99:1)	small amt of oil
93-91	5X	"	trace of oil
92-99	7X	400ml. Ether-MeOH (19:1)	small amt of ...

Fractions 4 to 41 were combined affording 1.31 g. of crystalline material m.p. 121-136°C. (50% yield). Partial recrystallization from chloroform, xls collected, 1.0 g m.p. 136-138°C. Recryst. from MeOH-H_2O, crystals collected, 0.7 g, m.p. 135-139°C. A third xn., also twice from chloroform afforded 0.6 g. m.p. 140-142°C. A sample (0.5 g) of the chloroform plates sublimed 8 hrs. at 95°C in vacuo a sublimate for analysis. A sample was also submitted for I.R. I.R. showing OH at 2.92 μ and C=O at 5.85 but also unknown C=O peak indicating possibly a epimeric mixture at C_3.

Calc for $C_{21}H_{34}O_2$, C=79.19; H=10.76; found, C=79.10; H=10.65

$[\alpha]_D^{25}$ = +8.92 ± 0.2° (1% in $CHCl_3$); corr. m.p. = 138.6-142.4°C.

Read and Understood by

R.U. Christy

A. J. Ingersoll

WIN 14,835

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[fol. 27]

Letter of Examiner, May 24, 1960

Responsive to amendment and affidavit filed April 1, 1960.

Claims 1 and 2 are in the case.

Attention of applicant is called to the fact that claim 1 has been improperly copied from patent No. 2,908,693. See section 1102.01(b), page 157, column 2, paragraph 2 of the MPEP.

The claim should read as follows:

Claim 1:

> A process for the production of a 17α-lower alkyl 2α methyl dihydrotestosterone comprising hydrogenating a 17α-lower alkyl 2-hydroxymethylene dihydrotestosterone in the presence of a hydrogenation catalyst selected from the group consisting of palladium and platinum catalyst.

The rejection in paragraph IV, page 2 of the last Office action, Paper No. 3, is not now applied in accordance with the procedure outlined in section 1101.02(f), pages 153 and 154 of the MPEP, without prejudice to the later application of the reference after the interference is declared, as is set forth in the above section.

(I) Claims 1 and 2 are rejected as being obviously fully met by the Ringold et al I patent, of record, which discloses the instantly claimed processes at column 1, line 34—column 2, line 7 and column 2, lines 23-46. Applicant's affidavit under Rule 204(b) filed April 1, 1960 (Paper No. 4) is insufficient to overcome the effective date of the reference for the following reasons:

1. It fails to disclose any utility for 2α,17α-dimethylandrostan-17β-ol-3-one, the final product allegedly produced.

2. It fails to show that said final product was known to have utility prior to the effective date of the reference. It is noted that the Ringold et al II article, of record, does not show any utility for said final product.

3. It fails to conclusively show that 2α,17α-dimethylandrostan-17β-ol-3-one was in fact produced. Exhibits C, D [fol. 28] and E refer to the product as being ". . . possibly an epimeric mixture at C_2," and do not definitely state that the α-epimer was either produced or isolated. In addition, exhibit E contains the notation "reported J. Org. Chem. *21* 1334 (1956)," which is a reference to the Ringold et al II article, but the analytical data shown in exhibit E (melting point, α_D, etc.) do not agree with those given for 2α,17α-dimethylandrostan-17β-ol-3-one in the aforementioned article.

(II) Claims 1 and 2 are rejected.

The rejection is made *FINAL.*

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS ACTION IS SET TO EXPIRE *JULY 27, 1960.*

L. H. GASTON
Examiner

Approved
For Shortened Period
May 20, 1960
I. G. STONE
Supervisory Examiner

LETTER REQUESTING AMENDMENT, DATED JULY 21, 1960

Hon. Commissioner of Patents
Washington 25, D. C.

Sir:

In response to the Office Letter of May 24, 1960, please amend the above-identified application as follows:

* * * *

For Claim 3, see Rejected Claim 3.

REMARKS

The interview kindly granted by the Examiner on July 12, 1960 to applicant's representatives is acknowledged.

It is believed that the following remarks are in accord with the position taken in behalf of applicant at the interview.

[fol. 29] In view of the objection to Claim 1 as improperly copied from Patent No. 2,908,693, Claim 1 is cancelled without prejudice and rewritten as Claim 3, identical with the claim proposed by the Examiner.

Reconsideration is respectfully requested of the sufficiency of applicant's Affidavit Under Rule 204(b) filed April 1, 1960.

With regard to the question of utility as raised in paragraphs 1 and 2 on page 2 of the last Office Action, it is submitted that applicant has made all of the showing as to utility that should properly be required of him for the purpose of declaration of the interference.

The claim involved, Claim 3, is directed to method subject matter. To be useful under the statute, an invention in method must, of course, produce a useful result, which is not questioned by the Patent Office as the disclosure has apparently been found adequate in this respect. The question now is the technical one of whether there was sufficient knowledge in the art at the time applicant made his invention so that the successful performance of the invention by carrying out the method and producing and analyzing the product could, at that time, be said to have been a useful act. For the following reasons it is submitted it was:—

1. The decision of *In re* Nelson et al. by the Court of Customs and Patent Appeals dated June 14, 1960, also directed to an invention in the steroid field, presented a question of patentability of a compound, said by the applicants to be useful as an intermediate. The Patent Office had taken the position that "since a compound which acts as an intermediate for the production of another compound having no utility can hardly be said to be useful in the sense of the law" (emphasis in the opinion), patentable utility was lacking. The Court, in holding the claims patentable, cited many decisions to the point that no particular degree of utility is required. The cited decisions appear to hold that an invention is useful if

[fol. 30] it is not frivolous, worthless, or detrimental to the well being or injurious to the morals of the public.

2. However, as in the Nelson decision, so here, a finding of utility does not require going that far. Applicant was a member of a research organization engaged in serious steroid research in distinction to research in frivolous, immoral matters of the kind held lacking in utility in the decisions referred to. A supplementary affidavit by the inventor will be filed stating by whom he is employed and the general character of the work he does and was doing at the time he made the present invention. The inventor is presently unavailable, being absent on vacation, but the affidavit will be executed and filed imediately upon his return, about August 1, 1960.

If the principle is to be regarded as established that the degree of utility is immaterial, and the avoidance of deception, immorality and frivolity are the criteria, it would seem clear that applicant's contribution more than satisfies what is needed for a finding of utility.

3. However, apart from the foregoing, there was knowledge in the art inuring to applicant's benefit as to the utility of compounds of the type applicant produced by the method claimed. Thus the Ringold et al. J. Org. Chem. reference referred to describes 2α-methylandrostan-17β-ol-3-one as a tumor inhibitor and that compound differs from the compound produced by the method of Claim 3 only in lacking the 17β-methyl substituent. This presents the question of whether it may properly be presumed that the homologue produced by the method of Claim 3 had the same utility. In non-steroid cases, at least, there is a presumption that adjacent homologues and even remote members of the same homologous series have substantially the same utility. That is the doctrine of the familiar *In re* Hass and *In re* Henze decisions.

[fol. 31] It has been questioned whether that doctrine is applicable in the steroid field because of a greater known unpredictability of compounds in that field. But it is understood that the doctrine is being applied in that field, and if it is, the doctrine, of course,

works both ways. There cannot be a sound presumption which on the one hand weighs against patentability and which on the other hand does not apply with equal force when the opposite conclusion is sought to be drawn from it.

4. Be that as it may, the very homologue with the 17β-methyl substituent which is recited as produced by the process of Claim 3 was known in fact to be a hormone. Ringold et al. (J. Org. Chem.) say: "While anti-tumor screening of the above described 2-methyl hormones is still in progress, Ia and IIa have already been shown to be very effective tumor inhibitors." (underlining added)

Accordingly, it is submitted that at the time applicant made his invention the knowledge in the art was adequate to support a conclusion on applicant's part, under all circumstances, that what he had accomplished by the method of Claim 3 was useful.

Applicant's purpose in adding Claim 3 is to provoke an interference with the Ringold patent. In the event that the Examiner still questions the sufficiency of applicant's Affidavit Under Rule 204(b), and for that reason denies applicant the right to contest the interference with Ringold et al., the Examiner, by that ruling, will have made a determination on the issue of priority as between applicant and Ringold which goes to a very fine distinction on the law of utility in interference practice of the sort which the Examiner thereby in fact will have found has been left open and undecided by the *In re* Nelson decision. The purpose of Nelson et al., like applicant, was to get into an interference, as Nelson et al. also had copied the claims in qeustion from an issued patent, as the opinion [fol. 32] shows. Applicant, having clearly performed the claimed method and produced the claimed compound prior to Ringold is entitled to have the question of priority, including its utility aspect, determined by the Board of Patent Interferences and, if necessary, by appeal to the Court of Customs and Patent Appeals. It is respectfully submitted that under the statute, 35 U.S.C. 135, jurisdiction for the determination of priority is in the Board of Patent Interferences and not in the Primary Examiner.

Without questioning, for the purposes of the present argument, the right of the Commissioner of Patents to delegate authority to the Primary Examiners to determine whether a bona fide interference case is presented which should be transmitted to the Examiner of Interferences for the determination of priority, pursuant to Rules 204 (b) and 131, applicant does very seriously question jurisdiction of Primary Examiners to determine questions of law such as here presented, should the Examiner again reject Claim 3. One of the dissenting opinions in the *In re* Nelson et al. decision, as originally handed down, posed the question as to the effect of that decision on the requirements as to utility in proof of reduction to practice in an interference. We have the same question of proof in applicant's case here involved and it is submitted that it should be decided *inter partes* by the Board of Patent Interferences having statutory jurisdiction in such matters. So far as the Primary Examiner's jurisdiction is concerned, manifestly there is a bona fide interference case which should be transmitted for decision as applicant clearly performed the method, analyzed the product and satisfied what is understood to be the law on the question of utility.

The Examiner also holds the affidavit insufficient as not conclusively showing that 2α,17α-dimethylandrostan-17β-ol-3-one was in fact produced.

Firstly, the Examiner has not denied that applicant has presented adequate evidence that he "hydrogenated a 17α-lower-alkyl 2-hydroxymethylene dihydrotestosterone in [fol. 33] the presence of a hydrogenation catalyst selected from the group consisting of palladium and platinum catalyst." This is all the claim calls for. The product of the process, named only in the preamble of the claim, must follow as an inevitable result of the process, otherwise the claim is indefinite for failure to include necessary reaction conditions for obtaining the product. The patent claims cannot now be challenged in this respect.

Secondly, it is urged, nevertheless, that the product was indeed completely identified as 2α,17α-dimethylandrostan-17β-ol-3-one. Out of an excess of caution common among reputable scientific investigators, applicant indi-

cated the product as "possibly an epimeric mixture at C_2", although it was to be expected that the product would assume largely the stable, equatorial conformation, that is, the α-configuration (see specification, page 2, lines 10-16). In any event, if a mixture of epimers had indeed been produced, it perforce contained some of the α-isomer, and that is all that the claim calls for.

Thirdly, the Examiner's statement that the data shown in Exhibit E do not agree with that given in the Ringold et al. II reference is incorrect. With regard to the melting point data, applicant found m.p. 138.6-142.4°C. and Ringold et al. 151-154°C. Such differences in melting points reported by different investigators for the same substance are not uncommon, and may be explained by such phenomena as polymorphic forms and variations in melting point due to rate of heating and solvent of recrystallization. It is noted also that the Ringold et al. melting points are uncorrected (footnote 6) whereas applicant's melting points are corrected. Attention is also called to the publication of Ringold et al., J. Am. Chem. Soc. *81*, 427-32 (1959) where it is shown (page 430, column 1) that 2α,17α-dimethylandrostan-17β-ol-3-one prepared by the exact procedure here claimed had a melting point of 147-151°. This is in closer agreement with applicant's melting point than that of the product obtained by the older alternative procedure. A photocopy of page [fol. 34] 430 of the newly cited Ringold et al. reference is enclosed herewith.

The Ringold et al. 1959 reference is not a statutory bar as evidenced by the title page (photocopy attached) showing that the journal was issued January 29, 1959, less than one year prior to the filing date of the instant application.

Turning now to the optical rotational data, again, contrary to the Examiner's statement, agreement between Ringold et al. and applicant is excellent. Ringold et al. show $[\alpha]_D = +8°$ and applicant $[\alpha]_D^{25} = +8.82° \pm 0.2°$. Rotations in each case were determined in chloroform. If applicant's product had significant amounts of the β-isomer in it, the rotation would have been quite different. The

difference in rotation between the 2α-methyl and 2β-methyl isomers can readily be calculated from data provided in the publication of Mazur and Sondheimer, J. Am. Chem. Soc. *80*, 5220-9 (1958) where the following data are given:

2α-Methylcholestan-3-one $[\alpha]_D = +32°$ (ρ 0.9 $CHCl_3$) (page 5226)

2β-Methylcholestan-3-one $[\alpha]_D = +86°$ (ρ 0.88 $CHCl_3$) (page 5228)

(Photocopies of pages 5226-8, inclusive of the Mazur et al. reference are attached). Thus it is seen that replacement of a 2α-methyl group by a 2β-methyl group causes a change in rotation of +54°. It can, therefore, be predicted with certainty that 2β,17α-dimethylandrostan-17β-ol-3-one would have an $[\alpha]_D$ value of +62°, assuming that Ringold et al. had the pure 2α-isomer. In any event, the rotation values prove that the product of Ringold et al. and that of applicant are essentially identical.

In view of the foregoing, it is submitted that the present Rule 204(b) Affidavit is entirely sufficient to show completion of the invention prior to the effective date of the Ringold et al. patent, and that the rejection of the [fol. 35] claims as fully met by said patent should be withdrawn and an interference with said patent declared.

Respectfully submitted,

ANDREW JOHN MANSON

By THOMAS L. JOHNSON
His Agent

July 21, 1960

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PHYSICAL AND INORGANIC CHEMISTRY

[CONTRIBUTION FROM THE CHEMISTRY DEPARTMENT OF THE UNIVERSITY OF MARYLAND]

The Kinetics of Three-step Competitive Consecutive Second-order Reactions[1]

BY W. J. SVIRBELY

RECEIVED JULY 28, 1958

The rate equations for a three-step competitive consecutive second-order reaction of the type $A + B \xrightarrow{k_1} C + E$, $A + C \xrightarrow{k_2} D + E$, $A + D \xrightarrow{k_3} F + E$ have been analyzed in terms of dimensionless variables. Although the general equation obtained is, in principle, solvable it was more convenient and equally instructive to solve the equation for the special case where $k_3 = 2k_2$.

Frost and Schwemer[2] have succeeded in solving the rate equations for competitive consecutive second-order reactions of the type $A + B \xrightarrow{k_1} C + E$, $A + C \xrightarrow{k_2} D + E$ in terms of general variables.

The purpose of this investigation was to analyze the rate equations in terms of general variables for three-step competitive consecutive second-order reactions.

The application of the resulting analysis to the alkaline hydrolysis of 1,3,5-tri-(4-carbomethoxyphenyl)-benzene will appear in another paper.

Mathematical Analysis

The reactions to be considered are

$$A + B \xrightarrow{k_1} C + E$$

$$A + C \xrightarrow{k_2} D + E$$

$$A + D \xrightarrow{k_3} F + E$$

The pertinent rate equations for the above steps are

$$\frac{dA}{dt} = -k_1AB - k_2AC - k_3AD \quad (1)$$

$$\frac{dB}{dt} = -k_1AB \quad (2)$$

$$\frac{dC}{dt} = k_1AB - k_2AC \quad (3)$$

$$\frac{dD}{dt} = k_2AC - k_3AD \quad (4)$$

where A, B, C and D are the molar concentrations at any time t, of the corresponding chemical species. If the initial concentrations of the species A and B are A_0 and B_0 respectively, and those of C and D are zero, then combination of equations 1–4 and integration between limits leads to the material balance equation 5, namely

$$A - 2B - 2C - D = A_0 - 2B_0 \quad (5)$$

If the initial concentrations of species A and B are so adjusted that $A_0 = 3B_0$ (equivalent amounts) then equation 5 leads to

$$C = \frac{A - D - 2B}{2} \quad (6)$$

combination of equations 6 and 1 leads to equation 7, namely

$$\frac{dA}{dt} = \left(\frac{3}{2}k_2 - k_1\right)AB + \left(\frac{k_2}{2} - k_3\right)AD - \frac{k_2}{2}A^2 \quad (7)$$

By use of the dimensionless variables α, β and τ and the parameter K, where

$$\alpha = \frac{A}{A_0};\ \beta = \frac{B}{B_0};\ \tau = B_0k_1t;\ K = \frac{k_2}{k_1} \quad (8)$$

equations 7 and 2 become

$$\frac{d\alpha}{d\tau} = \left(\frac{3}{2}K - 1\right)\alpha\beta + \left(\frac{K}{2} - \frac{k_3}{k_1}\right)\alpha\frac{D}{B_0} - \frac{3}{2}K\alpha^2 \quad (9)$$

$$\frac{d\beta}{d\tau} = -\alpha\beta \quad (10)$$

On dividing equation 9 by equation 10 one obtains

$$\frac{d\alpha}{d\beta} = \left(\frac{2 - 3K}{6}\right) - \frac{D}{2B_0}\left(\frac{K}{2} - \frac{k_3}{k_1}\right) + \frac{K}{2}\frac{\alpha}{\beta} \quad (11)$$

(1) Presented in part at the Chicago Meeting of the American Chemical Society, September, 1958.

(2) A. A. Frost and W. C. Schwemer, THIS JOURNAL, 74, 1268 (1952).

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alytical sample with which this sample was identical in all respects.

(c) By Hydrogenation of 3α-Methyltestosterone Cyclo-ethylene Ketal.—The ketal V (130 mg.) was hydrogenated for 5 hr. at 25° and 570 mm. in 20 ml. of methanol over 130 mg. of prehydrogenated 10% palladium—carbon catalyst (ketal 5 ml.). The filtered solution, after the addition of water (5 ml.) and concentrated hydrochloric acid (1 ml.), was boiled for 30 minutes, concentrated *in vacuo* and precipitated with water. Filtration and crystallization from acetone-hexane gave 40 mg. of authentic IIa, m.p. 150–152°.

3α-Methylandrostan-17β-ol-3-one 17-Propionate (IIa Propionate).—A solution of 1 g. of IIa, 3.3 ml. of propionic anhydride and 1.1 ml. of pyridine after being heated for 2 hr. at 60° was cooled and treated with 50 ml. of water. The mixture was heated to hydrolyze excess anhydride, then cooled and extracted with methylene dichloride, the extract being washed successively with dilute hydrochloric acid, bicarbonate and water. Evaporation and crystallization of the residue from hexane gave 900 mg. of IIa propionate, m.p. 128–130°, $[\alpha]_D$ +34°.

Anal. Calcd. for $C_{22}H_{36}O_3$: C, 75.81; H, 10.07. Found: C, 76.48; H, 10.01.

IIa Phenylpropionate.—3α-Methyldihydrotestosterone (1 g.) in 5 cc. of cold pyridine was treated with 0.8 g. of phenylpropionyl chloride and the solution then allowed to stand for 18 hr. at room temperature and finally heated for 30 minutes at 90°. The cooled solution was worked up as in the case of the propionate and the residue chromatographed on 50 g. of neutral alumina, the benzene–benzene (1:1 and 2:3) fractions yielding after crystallization from acetone–hexane, 740 mg. of phenylpropionate, m.p. 122–124°, $[\alpha]_D$ +33°, λ_{max} 224 mμ and 268 mμ, log ε 2.38 and 2.26.

Anal. Calcd. for $C_{28}H_{40}O_3$: C, 79.77; H, 9.23. Found: C, 79.30; H, 9.12.

IIa Cyclopentylpropionate.—Cyclopentylpropionyl chloride was substituted for phenylpropionyl chloride in the preparation above. Chromatography and methanol–water crystallization of the benzene–benzene (3:1) fractions gave 3α-methylandrostan-17β-ol-3-one cyclopentylpropionate, m.p. 98–100°, $[\alpha]_D$ +34°.

Anal. Calcd. for $C_{26}H_{42}O_3$: C, 78.45; H, 10.34. Found: C, 78.70; H, 9.86.

3α,17α-Dimethylandrostan-17β-ol-3-one (IIb). (a) By Oxalate Sequence.—17α-Methylandrostan-17β-ol-3-one (10 g.) was condensed with excess ethyl oxalate exactly as described for Ia. Acidification of the sodium salt of the 2-ethoxymalate gave an amorphous solid which was filtered, washed, dried and treated successively with methyl iodide and sodium ethoxide as in Ia. The crude product (4.0 g.) remaining after reversal of oxalate condensation was chromatographed on 200 g. of neutral alumina. Crystallization of the benzene–ether (19:1) fractions from ether–hexane gave 0.39 g. (9%) of IIb, m.p. 151–154°, $[\alpha]_D$ +8°.

Anal. Calcd. for $C_{20}H_{34}O_2$: C, 79.19; H, 10.76. Found: C, 79.20; H, 10.83.

(b) By Hydrogenation of 2-Hydroxymethylene Derivative.—17α-Methylandrostan-17β-ol-3-one (20 g.) in anhydrous thiophene-free benzene (700 ml.) was treated with ethyl formate (60 ml.), sodium hydride (12 g.) and the mixture stirred for 8 hr. under nitrogen. The sodio salt of the hydroxymethylene derivative was filtered, washed first with benzene, then hexane and dried *in vacuo*. Precipitation in dilute cold hydrochloric acid liberated crude 2-hydroxymethylene-17α-methylandrostan-17β-ol-3-one (IVb) (20 g.). The filtered, washed and dried product was added to 700 ml. of methanol containing 16 g. of pre-hydrogenated 5% palladium–carbon catalyst and the product hydrogenated at 25° and 570 mm. Hydrogen uptake (1.8 moles equivalents) ceased in 2 hr., the solution was filtered and concentrated to dryness. The residue (negative ferric chloride test) was purified by chromatography on 960 g. of alkaline alumina. The benzene–ether (9:1) fractions crystallized from acetone–hexane to yield 11.06 g. (55%) of IIb, m.p. 147–151°.

2-Hydroxymethylene-17α-methylandrostan-17β-ol-3-one (IVb).—Ethyl acetate crystallization of the crude 2-hydroxymethylene derivative above (preparation of IIb part (b)) gave pure IVb, m.p. 178–180°, $[\alpha]_D$ +38°, λ_{max}. 285 mμ, log ε 3.99. In a number of runs the average yield of purified material was 65%.

Anal. Calcd. for $C_{20}H_{32}O_3$: C, 75.88; H, 9.70. Found: C, 75.71; H, 9.64.

IVb and acetate, hexane crystallization, m.p. 144–146°, $[\alpha]_D$ +27° (ethanol), λ_{max} 255 mμ, log ε 4.09. *Anal.* Calcd. for $C_{22}H_{34}O_4$: C, 73.76; H, 9.15. Found: C, 73.49; H, 9.07.

IVb and propionate, hexane crystallization, m.p. 135°, $[\alpha]_D$ +26 ° (ethanol), λ_{max}. 257 mμ, log ε 4.11. *Anal.* Calcd. for $C_{23}H_{36}O_4$: C, 74.19; H, 9.34. Found: C, 73.74; H, 9.14.

IVb and benzoate, acetone–water crystallization, m.p. 189–190°, $[\alpha]_D$ ± 0°, λ_{max}. 230 mμ, log ε 4.19. *Anal.* Calcd. for $C_{27}H_{36}O_4$: C, 77.03; H, 8.31. Found: C, 77.37; H, 8.06.

2-Hydroxymethylene-17α-methyl-19-nortestosterone (IIIa).—17α-Methyl-19-nortestosterone[22] was condensed with ethyl formate as described above. Crystallization from acetone–ether gave the analytical specimen of IIIa, m.p. 146–147°, $[\alpha]_D$ −74°, λ_{max}. 252 mμ and 305 mμ, log ε 4.06 and 3.78.

Anal. Calcd. for $C_{19}H_{28}O_3$: C, 75.95; H, 8.38. Found: C, 75.52; H, 8.55.

2-Hydroxymethylene-17α-methyltestosterone (IIIb) was prepared from 17α-methyltestosterone and ethyl formate as described above; analytical sample from acetone–ether, m.p. 179–181°, $[\alpha]_D$ +6°, λ_{max}. 251 and 309 mμ, log ε 4.07 and 3.73.

Anal. Calcd. for $C_{20}H_{30}O_3 \cdot {}^1/_2C_6H_6O$: C, 75.16; H, 9.28. Found: C, 74.81; H, 9.08.

2-Hydroxymethylene-17α-methyl-19-norandrostan-17β-ol-3-one[23] and ethyl formate as described above. Crystallization from methanol yielded pure IVa, m.p. 196–197°, $[\alpha]_D$ +95°, λ_{max}. 281 mμ, log ε 3.96.

Anal. Calcd. for $C_{19}H_{30}O_3$: C, 75.43; H, 9.50. Found: C, 74.87; H, 9.55.

3α-Methyl-3-cyclo-ethylenedioxy-Δ⁴-androstan-17β-ol (V). —A mixture of 3α-methyltestosterone (Ia) (2 g.), ethylene glycol (30 ml.), benzene (100 ml.) and *p*-toluenesulfonic acid·$1H_2O$ (200 mg.) was boiled for 22 hr. with continuous separation of water. The cooled solution, after potassium carbonate wash, was evaporated to dryness. Crystallization of the residue from acetone–hexane yielded 1.1 g. of V, m.p. 173–177°, and a second crop of 400 mg., m.p. 164–171°. Recrystallization from the same solvent gave the pure material, m.p. 175–178°, $[\alpha]_D$ +41° (pyridine), no selective absorption in the ultraviolet.

Anal. Calcd. for $C_{22}H_{34}O_3$: C, 76.26; H, 9.89. Found: C, 76.11; H, 9.78.

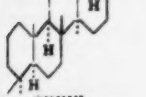
3α-Methyl-3-cyclo-ethylenedioxy-Δ⁴-androstan-17-one (VI).—A stirred solution of 1.8 g. of V, in 20 cc. of pyridine was cooled to 10° and treated under nitrogen, with 900 mg. of chromium trioxide. The mixture was then allowed to stand at room temperature for 18 hr. before being diluted with 100 ml. of ethyl acetate and filtered. The filtrate was evaporated to dryness *in vacuo* and the residue chromatographed on 20 g. of alkaline alumina. The hexane–benzene (1:1) fractions were crystallized from acetone–hexane yielding the 17-ketone VI (930 mg.), m.p. 201–210°. A sample crystallized from acetone to constant melting point exhibited m.p. 206–210°, $[\alpha]_D$ +51° (pyridine).

Anal. Calcd. for $C_{22}H_{32}O_3$: C, 76.70; H, 9.36. Found: C, 76.92; H, 9.38.

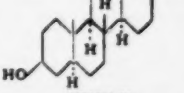
3α-Methyl-17α-ethynyl-3-cyclo-ethylenedioxy-Δ⁴-androstan-17β-ol (VII).—A solution of the preceding ketal-ketone VI (2.0 g.) in 45 ml. of anhydrous benzene was added, under nitrogen, to the solution prepared from dissolving 2 g. of potassium in 40 ml. of *t*-amyl alcohol. A slow current of purified acetylene was passed through the solution for 40 hours, whereupon the solution was poured into ice-water and extracted with benzene. Evaporation of solvent and chromatographic separation of the residue on 100 g. of alkaline alumina gave in the hexane–benzene (2:3) fractions 510 mg. of 17α-ethynyl compound VII. The analytical sample, from acetone–hexane melted at 224–227°, $[\alpha]_D$ −63° (pyridine).

(21) C. Djerassi, L. Miramontes, G. Rosenkranz and F. Sondheimer THIS JOURNAL, 76, 4092 (1954).

(22) A. Bowers, H. J. Ringold and R. I. Dorfman, *ibid.*, 79, 4556 (1957).



XXXVI
a, R = H, R' = Me
b, R = Me, R' = H



XXXVII
a, R = H, R' = Me
b, R = Me, R' = H

compound.[30] However, with this pair the usual stability relationship is reversed, the equatorial isomer being the less stable due to interference with the C-12 methylene group. The presently described solvent shift is therefore operative with the less stable isomer XXXVIa, as is also the abnormality of the rotatory dispersion.[28] The last pair in Table III shows that the effect is also observed when comparing rotations measured in chloroform and dioxane. Thus whereas the equatorial methyl compound XXXVIIa shows almost the same rotation in the two solvents, the axial isomer XXXVIIb in dioxane has a markedly lower rotation than in chloroform, the direction of the shift again being opposite to the usual one.[28,9] The magnitude is however less than in the other cases where chloroform was compared with methanol. The observation that the rotations of epimerizable α-methyl ketones are considerably lower in methanol or dioxane than in chloroform seems to be general.

Acknowledgments.—We would like to thank Professor E. R. H. Jones, F.R.S., for giving us advance information prior to publication about the bromination of enol acetates and Professor C. Djerassi for sending us a manuscript of the paper mentioned in footnote 28 before publication. We are also indebted to Dr. S. Pinchas of this Institute for determining the infrared spectra.

Experimental[31]

Direct Methylation of Cholestan-3-one (I). (a) To Give Mainly 2α-Methylcholestan-3-one (II).—A solution of 700 mg. (18 millimoles) of potassium in 35 cc. of *t*-butyl alcohol was added to a boiling solution of 5 g. (13 millimoles) of cholestan-3-one (I) in 50 cc. of benzene and 25 cc. of *t*-butyl alcohol. Methyl iodide (5 cc.) in 5 cc. of benzene was then added and refluxing was continued for 3 minutes. The solution was cooled, ice was added and the product was isolated with ether. The crystalline residue was chromatographed in light petroleum solution on 300 g. of alumina. Elution with light petroleum yielded first 850 mg. of partially crystalline material (fraction A) enriched in 2,2-dimethylcholestan-3-one, then 1.01 g. of 2α-methylcholestan-3-one (fraction B), m.p. 117–119°, and then 482 mg. of material with m.p. 118–121° (fraction C) which by rechromatography was shown to be a mixture of cholestan-3-one and 2α-methylcholestan-3-one. Lastly light petroleum and light petroleum–benzene (9:1 and 4:1) yielded 2.11 g. of unchanged cholestan-3-one (fraction D), m.p. 128–129°.

Crystallization of fraction B from ether–methanol gave pure 2α-methylcholestan-3-one, m.p. 119–120°, $[\alpha]_D$ +32° (*c* 0.9).

Anal. Calcd. for $C_{28}H_{48}O$: C, 83.93; H, 12.08. Found: C, 84.20; H, 12.20.

Crystallization of fraction A from ether–methanol gave 0.55 g. of pure 2,2-dimethylcholestan-3-one, m.p. 111–113°, $[\alpha]_D$ +77° (*c* 0.87).

Anal. Calcd. for $C_{29}H_{50}O$: C, 83.99; H, 12.15. Found: C, 84.20; H, 12.33.

(b) To Give Mainly 2,2-Dimethylcholestan-3-one (III).—A solution of 2 g. (51 millimoles) of potassium in 50 cc. of *t*-butyl alcohol was added to a boiling solution of 2 g. (5 millimoles) of cholestan-3-one in 50 cc. of benzene and 25 cc. of *t*-butyl alcohol. Methyl iodide (15 cc.) in 50 cc. of benzene was added and the mixture was boiled under reflux for 1 hr. The product was isolated as previously and was chromatographed in pentane solution on 100 g. of alumina. The first fraction, eluted with pentane, on crystallization from ether–methanol yielded 1.08 g. of 2,2-dimethylcholestan-3-one, m.p. 111–113°. Identity with the sample prepared by method a was established by non-depression in m.p. on admixture and by infrared comparison. The next fraction, eluted with pentane and pentane–benzene (9:1) gave 120 mg. of 2α-methylcholestan-3-one, which after crystallization from methanol–ether showed m.p. 119–120°, undepressed with the previously described sample. Lastly, pentane–benzene (9:1 and 4:1) eluted 210 mg. of unchanged cholestan-3-one.

Methylation of Cholestan-3-one (I) via the Ethoxyoxalate IV.—A mixture containing 2 g. of cholestan-3-one, 120 mg. of sodium hydride and 0.68 cc. of ethyl oxalate in 20 cc. of benzene was stirred at room temperature in nitrogen for 78 hr. Ether and water were then added, the aqueous layer was separated, acidified with dilute hydrochloric acid and extracted with ether. This latter ether extract on being dried and evaporated yielded 1.9 g. of the crude ethoxyoxalate IV which was boiled for 16 hr. with 1 g. of anhydrous potassium carbonate and 2 cc. of methyl iodide in 20 cc. of dry acetone. The mixture was cooled and diluted with water and ether. The ether extract was washed with sodium hydroxide solution and water and was then dried and evaporated. The residue was boiled for 3 hr. under reflux with a solution of 5 g. of sodium in 100 cc. of ethanol. The neutral product was isolated with ether and was chromatographed in light petroleum solution on 100 g. of alumina. The fractions eluted with light petroleum and light petroleum–benzene (9:1) gave 203 mg. of 2α-methylcholestan-3-one, m.p. 118–119°. Identity with the above-described sample was established through mixture m.p. determination and infrared comparison.

2α-Methyl-Δ⁴-cholesten-3-one (VII).—A solution of 10 g. of Δ⁴-cholesten-3-one (V) in 50 cc. of benzene was treated with 3.75 cc. of ethyl oxalate and 0.6 g. of sodium hydride and the mixture was allowed to stand at room temperature in nitrogen for 72 hr. Methanol (5 cc.) was added to decompose the unreacted hydride and then ether and water. The aqueous extract was acidified, shaken with ether and the ether extract was dried and evaporated. The resulting crude ethoxyoxalate VI (8.2 g.) was boiled under reflux with 5 g. of anhydrous potassium carbonate and 5 cc. of methyl iodide in 50 cc. of dry acetone for 14 hr. The mixture was cooled, diluted with water and ether and the ether extract was washed with 5% sodium hydroxide solution and water. The oily residue obtained by evaporation of the ether was boiled for 3 hr. with a solution of 5 g. of sodium in 100 cc. of ethanol. Isolation of the neutral product with ether yielded 6.1 g. of a partially crystalline material which was dissolved in light petroleum–benzene (1:1) and chromatographed on 200 g. of alumina. The fractions eluted with light petroleum–benzene (1:1) on crystallization from ether–methanol gave 2.6 g. of 2α-methyl-Δ⁴-cholesten-3-one with m.p. 124–125°. The analytical sample, obtained by further crystallization from ether–methanol, showed m.p. 126–127°, $[\alpha]_D$ +92°, λ_{max} 239 mμ (log ε 4.19), $\nu_{max}^{CCl_4}$ 1671 and 1622 cm.⁻¹.

Anal. Calcd. for $C_{28}H_{46}O$: C, 84.35; H, 11.63. Found: C, 84.20; H, 11.83.

Lithium–Ammonia Reduction of 2α-Methyl-Δ⁴-cholesten-3-one (VII).—A solution of 250 mg. of 2α-methyl-Δ⁴-

(30) T. R. Aspin, J. L. Beton, A. Bowers, T. G. Halsall and E. R. H. Jones, *J. Chem. Soc.*, 1956 (1954).

(31) Melting points are uncorrected. All chromatograms were carried out with Merck "acid-washed" alumina. Rotations were determined at room temperature in chloroform solution. Ultraviolet spectra were measured in 95% ethanol solution on a Unicam Model S.P. 500 spectrophotometer. Infrared spectra were determined on a Perkin–Elmer model 13C single beam spectrophotometer with sodium chloride prism. Analyses were carried out in our microanalytical department under the direction of Mr. Erich Meier.

cholesten-3-one (VII) in 10 cc. of dry ether was added dropwise with stirring to a solution of 100 mg. of lithium in *ca.* 25 cc. of liquid ammonia during 5 minutes. The mixture was then stirred for another 20 minutes, when 2 g. of ammonium chloride was added. The product was then isolated with ether in the usual way and chromatographed in light petroleum solution on 6 g. of alumina. The fractions eluted with light petroleum and with light petroleum–benzene (9:1) gave 130 mg. of 2α-methylcholestan-3-one (II), which after crystallization from ether–methanol showed m.p. 118–119°. The substance was identical with that prepared previously (mixture m.p., infrared comparison). Further elution with benzene gave fractions which on crystallization from ether–methanol yielded 104 mg. of 2α-methylcholestan-3β-ol (VIIIa), m.p. 139–140°, $[\alpha]_D$ +8° (*c* 1.5).

Anal. Calcd. for $C_{28}H_{48}O$: C, 83.51; H, 12.52. Found: C, 83.84; H, 12.39.

Catalytic Hydrogenation of 2α-Methyl-Δ⁴-cholesten-3-one (VII).—A solution of 2 g. of 2α-methyl-Δ⁴-cholesten-3-one in 75 cc. of ethanol was shaken in hydrogen over 200 mg. of a 10% palladium–charcoal catalyst. Uptake of gas stopped after 1.03 molar equivalents of hydrogen had been absorbed. The catalyst and solvent were removed and the residue, dissolved in 50 cc. of absolute ether, was added dropwise to a stirred solution of 1 g. of lithium aluminum hydride in 50 cc. of ether. The mixture was boiled under reflux for 1 hr. and the excess hydride was then decomposed by the careful addition of ethyl acetate. Addition of dilute hydrochloric acid and isolation with ether in the usual way led to 1.98 g. of material which was treated with 4 g. of digitonin in 200 cc. of 90% ethanol. The precipitated digitonide was collected, dissolved in the minimum of pyridine and diluted with ether. The precipitated digitonin was removed by filtration, washed with ether and the ether filtrates were evaporated. The residual crystalline material (568 mg.) on crystallization from ether–methanol yielded 509 mg. of 2α-methylcholestan-3β-ol (VIIIa), m.p. 139–140°, identified with the above-described material through mixture m.p. determination and infrared comparison.

The filtrate obtained after removal of the digitonide was evaporated to dryness, the residue was treated with ether and the excess digitonin was removed by filtration. The ether solution was evaporated and yielded 1.42 g. of crude 2β-methylcoprostan-3α-ol (XIa). A sample on crystallization yielded the pure compound with m.p. 124–126°. The crude material (1.1 g.) dissolved in 50 cc. of acetic acid was oxidized by being allowed to stand for 16 hr. at room temperature with 0.4 g. of chromic acid in 20 cc. of 90% acetic acid. The excess of chromic acid was then decomposed by the careful addition of methanol, water was added and the product was isolated with ether. Crystallization from ether–methanol gave 720 mg. of 2β-methylcoprostan-3-one (X), m.p. 111–112°, $[\alpha]_D$ +30° (*c* 1.1).

Anal. Calcd. for $C_{28}H_{48}O$: C, 83.93; H, 12.08. Found: C, 83.75; H, 12.03.

The analogous oxidation of 500 mg. of the 2α-methylcholestan-3β-ol (VIIIa) obtained from the hydrogenation experiment led to 430 mg. of 2α-methylcholestan-3-one (II), m.p. 119–120°. Identity with the above-described samples was established in the usual way.

When the total hydrogenation product from 2 g. of 2α-methyl-Δ⁴-cholesten-3-one (VII) was chromatographed directly on 100 g. of alumina, the separation was incomplete. After rechromatography, a total of 245 mg. of 2β-methylcoprostan-3-one with m.p. 110–111° and 110 mg. of 2α-methylcholestan-3-one with m.p. 119–120° could be obtained, the former being eluted (with pentane) before the latter.

Reduction of 2α-Methylcholestan-3-one (II) to 2α-Methylcholestan-3β-ol (VIIIa).—A solution of 200 mg. of 2α-methylcholestan-3-one (II) in 20 cc. of ether was added dropwise to 500 mg. of lithium aluminum hydride in 20 cc. of ether. The mixture was boiled under reflux for 2 hr. and then decomposed by the addition of ice and dilute hydrochloric acid. Isolation with ether and crystallization from ether–methanol produced 174 mg. of 2α-methylcholestan-3β-ol (VIIIa), m.p. 139–140°, $[\alpha]_D$ +8° (*c* 1.4), identified with the above-described compound in the usual way. Acetylation (acetic anhydride, pyridine, room temperature, overnight) and subsequent crystallization from methanol yielded the acetate VIIIb with m.p. 107–108°, $[\alpha]_D$ −33° (*c* 1.7).

Anal. Calcd. for $C_{30}H_{50}O_2$: C, 81.02; H, 11.79. Found: C, 81.01; H, 11.95.

Reduction of 2,3-Dimethylcholestan-3-one (III) to 2,3-Dimethylcholestan-3β-ol (IXa).—The reduction of 1 g. of 2,3-dimethylcholestan-3-one with 1 g. of lithium aluminum hydride in 70 cc. of ether was carried out as described for the preceding experiment. Crystallization from methanol produced 850 mg. of 2,3-dimethylcholestan-3β-ol (IXa) with m.p. 116–118°, $[\alpha]_D$ +31° (*c* 0.8).

Anal. Calcd. for $C_{29}H_{50}O$: C, 83.56; H, 12.08. Found: C, 83.12; H, 12.59.

The acetate IXb (acetic anhydride, pyridine, room temperature, overnight) on crystallization from methanol showed m.p. 124–126°, $[\alpha]_D$ +19° (*c* 1.2).

Anal. Calcd. for $C_{31}H_{52}O_2$: C, 81.16; H, 11.87. Found: C, 81.08; H, 11.88.

Reduction of 2β-Methylcoprostan-3-one (X) to 2β-Methylcoprostan-3α-ol (XIa).—2β-Methylcoprostan-3-one (20 mg.) in 10 cc. of ether was reduced with 100 mg. of lithium aluminum hydride in 5 cc. of ether as previously. Crystallization of the product from ether–methanol yielded 66 mg. of 2β-methylcoprostan-3α-ol (XIa), m.p. 124–126°, $[\alpha]_D$ +28° (*c* 1.8).

Anal. Calcd. for $C_{28}H_{50}O$: C, 83.51; H, 13.22. Found: C, 83.09; H, 12.26.

The acetate XIb (acetic anhydride, pyridine, overnight at room temperature) on crystallization from methanol showed m.p. 86–87°, $[\alpha]_D$ +78° (*c* 1.1).

Anal. Calcd. for $C_{30}H_{52}O_2$: C, 81.03; H, 11.79. Found: C, 81.27; H, 11.81.

2-Methyl-Δ⁴-cholesten-3-ol Acetate (XII).—A solution of 150 mg. of 2α-methylcholestan-3-one (II) in 20 cc. of isopropenyl acetate was treated with 1 drop of concd. sulfuric acid and the solution was boiled under reflux for 3 hr. The product, isolated with ether in the usual way, was passed in pentane–benzene (9:1) solution through 6 g. of alumina. Crystallization of the eluates from ether–methanol gave 120 mg. of the enol acetate XII with m.p. 93–94°, $[\alpha]_D$ +80° (*c* 1.75), $\nu_{max}^{CCl_4}$ 1730 cm.⁻¹.

Anal. Calcd. for $C_{30}H_{50}O_2$: C, 81.39; H, 11.38. Found: C, 81.35; H, 11.46.

2α-Methyl-2β-bromocholestan-3-one (XIII). (a) By Direct Bromination of 2α-Methylcholestan-3-one (II).—A solution of 99 mg. of bromine in 3.3 cc. of glacial acetic acid was added dropwise during 10 minutes to a stirred solution of 225 mg. of 2α-methylcholestan-3-one (II) in 15 cc. of acetic acid at room temperature. The mixture was stirred for another 2 hr. and the resulting precipitate was then collected and washed with a little methanol. Crystallization from ether–methanol yielded 116 mg. of the bromo ketone XIII with m.p. 136–137°, $[\alpha]_D$ −20° (*c* 1.04), $\nu_{max}^{CCl_4}$ 1714 cm.⁻¹.

Anal. Calcd. for $C_{28}H_{49}BrO$: C, 70.11; H, 9.88. Found: C, 70.13; H, 9.89.

(b) By Bromination of 2-Methyl-Δ⁴-cholesten-3-ol Acetate (XII).—A solution of 40 mg. of bromine in 0.8 cc. of acetic acid was added to 100 mg. of the enol acetate XII dissolved in 18 cc. of acetic acid and 2 cc. of pyridine and the solution was allowed to stand overnight at room temperature. Water and ice were then added, the precipitate was collected, washed with water, dried and crystallized from ether–methanol. This procedure yielded 65 mg. of the 2β-bromo compound XIII, m.p. 136–137°, $[\alpha]_D$ −20° (*c* 0.8). Identity with the sample prepared by method a was established in the usual way.

2-Methyl-Δ¹-cholesten-3-one (XIV).—A solution of 185 mg. of 2α-methyl-2β-bromocholestan-3-one (XIII) in 10 cc. of dimethylformamide containing 1 g. of lithium chloride was boiled under reflux for 2 hr. The product, isolated by means of ether as usual, was triturated with 10 cc. of methanol. The insoluble material was removed by filtration and the filtrate was concentrated to small volume and cooled. The resulting 2-methyl-Δ¹-cholesten-3-one (72 mg.) was obtained as long needles with m.p. 73–74°, $[\alpha]_D$ +62° (*c* 0.9), λ_{max} 241 mμ (log ε 4.02), $\nu_{max}^{CCl_4}$ 1675 cm.⁻¹.

Anal. Calcd. for $C_{28}H_{48}O$: C, 84.35; H, 11.63. Found: C, 84.39; H, 11.56.

2β-Methylcholestan-3-one (XV).—A solution of 100 mg. of 2-methyl-Δ¹-cholesten-3-one (XIV) in 20 cc. of ethanol

was shaken in hydrogen with 50 mg. of a 10% palladium-charcoal catalyst. Uptake stopped after 1.05 molar equivalents of hydrogen had been absorbed. The catalyst was removed and the filtrate was concentrated to small volume and cooled. The resulting 2β-methylcholestan-3-one (62 mg.) with m.p. 90–92° on further crystallization from ether-methanol yielded the analytical sample with m.p. 96–97°, $[\alpha]_D$ +86° (*c* 0.88). The m.p. was depressed by *ca.* 10° on admixture with a sample of 2α-methylcholestan-3-one.

Anal. Calcd. for $C_{28}H_{48}O$: C, 83.93; H, 12.08. Found: C, 84.13; H, 12.16.

Isomerization of 2β-Methylcholestan-3-one (IV) to 2α-Methylcholestan-3-one (II).—A solution containing 35 mg. of 2β-methylcholestan-3-one and 0.1 cc. of 20% sulfuric acid in 5 cc. of ethanol was boiled under reflux for 2 hr. Water was added and the product was isolated with ether. One crystallization from ether–methanol gave 2α-methylcholestan-3-one as needles with m.p. 117–119°, undepressed on admixture with an authentic sample (m.p. 119–120°).

2-Methyl-Δ¹-coprosten-3-one (XVIII) and 2α-Methyl-Δ⁴-cholesten-3-one (VII) from 2β-Methylcoprostan-3-one (X).—A solution of 80 mg. of bromine in 1.1 cc. of acetic acid containing a drop of hydrobromic acid (72%) was added to 200 mg. of 2β-methylcoprostan-3-one (X) in 30 cc. of acetic acid. After being allowed to stand at room temperature for 1 hr., the solution was diluted with water and ice and the product was isolated with ether in the usual way. The resulting total brominated product then was dissolved in 10 cc. of dimethylformamide, 1 g. of lithium chloride was added and the solution was boiled for 2 hr. The product, isolated with ether, was dissolved in pentane and chromatographed on 10 g. of alumina. The fractions eluted with pentane–benzene (4:1) on crystallization from methanol gave 43 mg. of 2-methyl-Δ¹-coprosten-3-one (XVIII) as needles with m.p. 96–97°, $[\alpha]_D$ +104° (*c* 0.76), λ_{max} 241 mμ (log ε 4.00), $\nu_{max}^{CCl_4}$ 1671 cm.⁻¹.

Anal. Calcd. for $C_{28}H_{46}O$: C, 84.35; H, 11.63. Found: C, 84.09; H, 11.80.

The fractions eluted with pentane–benzene (1:1) on crystallization from methanol yielded 24 mg. of 2α-methyl-Δ⁴-cholesten-3-one (VII) with m.p. 125–127°, undepressed on admixture with the sample (m.p. 126–127°) described above.

When the bromination of 200 mg. of 2β-methylcoprostan-3-one (X) was carried out as above and the brominated product was crystallized from methanol containing a drop of acetic acid, 45 mg. of 2β-methyl-4β-bromocoprostan-3-one (XVI) with m.p. 126–128°, $[\alpha]_D$ +49° (*c* 0.8), $\nu_{max}^{CCl_4}$ 1730 cm.⁻¹, was obtained.

Anal. Calcd. for $C_{28}H_{47}BrO$: C, 70.11; H, 9.88. Found: C, 70.24; H, 9.91.

The pure bromo ketone XVI (30 mg.) was dehydrobrominated by being boiled under reflux for 2 hr. with 0.5 g. of lithium chloride in 5 cc. of dimethylformamide. Isolation with ether as usual, followed by chromatography on 6 g. of alumina and crystallization of the fractions eluted with pentane–benzene (1:1) from methanol yielded 12 mg. of 2α-methyl-Δ⁴-cholesten-3-one (VII) with m.p. 124–126°. There was no depression on admixture with an authentic sample. No indications of the formation of the Δ¹-isomer XVIII were obtained.

Lithium-Ammonia Reduction of 4-Methyl-Δ⁴-cholesten-3-one (XIX).—A solution of 100 mg. of 4-methyl-Δ⁴-cholesten-3-one (XIX)[9] in 10 cc. of dry ether was added dropwise with stirring to a solution of 100 mg. of lithium in *ca.* 25 cc. of liquid ammonia during 5 minutes. The mixture was then stirred for another 15 minutes, when ice and dilute hydrochloric acid were added and the product was isolated with ether as usual. Crystallization from ether–methanol yielded 71 mg. of 4α-methylcholestan-3-one (XX) with m.p. 121–123°, $[\alpha]_D$ +26° (*c* 1.4); reported[17] m.p. 122–122.5°, 123–124°, $[\alpha]_D$ +25°, +26°.

Anal. Calcd. for $C_{28}H_{48}O$: C, 83.93; H, 12.08. Found: C, 83.83; H, 12.27.

Catalytic Hydrogenation of 4-Methyl-Δ⁴-cholesten-3-one (XIX).—A solution of 250 mg. of 4-methyl-Δ⁴-cholesten-3-one (XIX)[9] in 50 cc. of ethanol was shaken in hydrogen with 100 mg. of a 10% palladium–charcoal catalyst until uptake ceased, 1.02 molar equivalents of gas being absorbed. The catalyst was removed by filtration and the filtrate was evaporated to small volume and cooled. The precipitate (156 mg., m.p. 87–93°) after three crystallizations from ether–methanol gave 101 mg. of 4β-methylcholestan-3-one (XXI) with m.p. 122–124°. A further purified sample showed m.p. 125–127°, $[\alpha]_D$ +36° (*c* 1.0); reported[17] m.p. 125–127°, $[\alpha]_D$ +36°. There was a *ca.* 20° depression in m.p. on admixture with the 4α-isomer XX.

Anal. Calcd. for $C_{28}H_{48}O$: C, 83.93; H, 12.08. Found: C, 84.02; H, 12.01.

The combined mother liquors were evaporated, dissolved in light petroleum and chromatographed on 10 g. of alumina. The first fractions, eluted with light petroleum, on being seeded and crystallized from ether–methanol gave 25 mg. of 4β-methylcoprostan-3-one (XXII) with m.p. 55–57°, undepressed on admixture with a sample prepared from coprostan-3-one (see below). The later fractions, eluted with light petroleum and light petroleum–benzene, had m.p. 108–118° and could not be purified by crystallization. This material was therefore boiled under reflux for 2 hr. with 25 cc. of ethanol and 0.25 cc. of 20% sulfuric acid. Isolation by means of ether and crystallization from ether–methanol gave 98 mg. of 4α-methylcholestan-3-one (XX) with m.p. 120–122°, undepressed on admixture with the sample obtained by the lithium–ammonia reduction of 4α-methyl-Δ⁴-cholesten-3-one (XIX).

Isomerization of 4β-Methylcholestan-3-one (XXI) to 4α-Methylcholestan-3-one (XX).—A solution of 500 mg. of 4β-methylcholestan-3-one (XXI) in 50 cc. of ethanol containing 0.5 cc. of 20% sulfuric acid was boiled under reflux for 2 hr. Isolation with ether and crystallization from ether–methanol yielded 384 mg. of 4α-methylcholestan-3-one (XX) with m.p. 120–122°, undepressed on admixture with the sample obtained by the lithium–ammonia reduction of 4-methyl-Δ⁴-cholesten-3-one.

4α-Methylcholestan-3β-ol (XXVIa).—A solution of 200 mg. of 4α-methylcholestan-3-one (XX) in 5 cc. of ether was added dropwise to a solution of 200 mg. of lithium aluminum hydride in 10 cc. of ether and the mixture was boiled under reflux for 2 hr. Ice and dilute hydrochloric acid were added and the product was isolated with ether as usual. The resulting material was dissolved in 20 cc. of ethanol and added to 80 cc. of a 2% solution of digitonin in 90% ethanol. The mixture was allowed to stand for 2 hr., the precipitated digitonide was collected, washed with 90% ethanol, dried and dissolved in a few drops of pyridine. Ether (200 cc.) was added, the digitonin was removed and the filtrate was evaporated. Crystallization of the residue from ether–methanol furnished 175 mg. of 4α-methylcholestan-3β-ol (XXVIa) with m.p. 160–163°. The analytical sample showed m.p. 163–164°, $[\alpha]_D$ +27° (*c* 0.8).

Anal. Calcd. for $C_{28}H_{50}O$: C, 83.51; H, 12.52. Found: C, 83.13; H, 12.37.

The acetate XXVIb (acetic anhydride, pyridine, overnight at room temperature) after crystallization from methanol showed m.p. 128–129°, $[\alpha]_D$ +41° (*c* 0.8).

Anal. Calcd. for $C_{30}H_{52}O_2$: C, 81.02; H, 11.79. Found: C, 81.35; H, 11.67.

4,4-Dimethylcholestan-3β-ol (XXVIIIa).—The reduction was carried out with 500 mg. of 4,4-dimethylcholestan-3-one (XXVII)[17] and 500 mg. of lithium aluminum hydride in 75 cc. of ether as described in the preceding experiment. Separation via the digitonide as before, regeneration and crystallization from methanol yielded 4,4-dimethylcholestan-3β-ol with m.p. 157–158°, $[\alpha]_D$ +11° (*c* 1.45).

Anal. Calcd. for $C_{29}H_{52}O$: C, 83.56; H, 12.58. Found: C, 83.02; H, 12.45.

The acetate XXVIIIb (acetic anhydride, pyridine, overnight at room temperature) after crystallization from methanol showed m.p. 138–139°, $[\alpha]_D$ +19° (*c* 1.33).

Anal. Calcd. for $C_{31}H_{54}O_2$: C, 81.16; H, 11.87. Found: C, 81.37; H, 11.92.

4α-Methyl-Δ⁴-cholesten-3-ol Acetate (XXIX).—A solution containing 300 mg. of 4α-methylcholestan-3-one (XX), 20 cc. of isopropenyl acetate and 1 drop of sulfuric acid was boiled under reflux for 3 hr. The product was isolated with ether, dissolved in pentane–benzene (9:1) and filtered through a column containing 10 g. of alumina. Two crystallizations from ether–methanol yielded 220 mg. of the enol acetate XXIX with m.p. 103–104°, $[\alpha]_D$ +9° (*c* 1.3), $\nu_{max}^{CCl_4}$ 1754 cm.⁻¹.

Anal. Calcd. for $C_{30}H_{50}O_2$: C, 81.39; H, 11.38. Found: C, 81.60; H, 11.28.

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[fol. 47]

APPEAL TO BOARD OF APPEALS, JULY 25, 1960

Hon. Commissioner of Patents
Washington 25, D. C.

Sir:

Applicant hereby appeals to the Board of Appeals from the decision of the principal Examiner finally rejecting Claims 1 and 2.

The Appeal fee of twenty-five dollars ($25.00) is enclosed herewith.

Respectfully submitted,

ANDREW JOHN MANSON

By ELMER J. LAWSON
His Agent

Rensselaer, New York
July 25, 1960

LETTER TO OFFICE, AUGUST 1, 1960

Hon. Commissioner of Patents
Washington 25, D. C.

Sir:

Supplementary to applicant's response dated July 21, 1960, enclosed herewith is an Affidavit by applicant the submission of which was promised on page 3 of said response.

The accompanying Affidavit demonstrates that applicant was not engaged in research of a frivolous kind, but in serious investigations in the steroid field leading to the preparation of a large number of novel steroids. In so doing applicant has contributed to the progress of science and the useful arts.

Respectfully submitted,

ANDREW JOHN MANSON

By THOMAS L. JOHNSON
His Agent

Rensselaer, New York
August 1, 1960

[fol. 48]

AFFIDAVIT OF MANSON, DATED AUGUST 1, 1960

State of New York)
) SS.:
County of Rensselaer)

I, ANDREW JOHN MANSON, being duly sworn, depose and say:

THAT I am a citizen of Canada, residing at Town of North Greenbush, County of Rensselaer, State of New York;

THAT I am the applicant in the above-identified application;

THAT I am an organic chemist by profession (University of New Brunswick, B.S. 1951, and Ph.D. 1954). I worked at Wayne State University in steroid research under the auspices of a post-doctoral grant from the American Cancer Society during 1954-55;

THAT since 1955 I have been employed by Sterling-Winthrop Research Institute, Rensselaer, New York as a research chemist. During this time I have been occupied almost exclusively in the synthesis of novel steroid compounds in research projects designed to produce new medicinal agents in the field of endocrinology. I have in the period of my employment prepared and submitted for testing approximately 80 novel steroid compounds;

And further I say not.

ANDREW JOHN MANSON

Sworn to and subscribed before me this 1st day of August, 1960.

EVA M. REINKE
Notary Public, State of New York
Qualified in Albany County
(SEAL) Commission expires March 30, 1962

[fol. 49]

Letter of Examiner, August 30, 1960

Responsive to amendment filed July 22, 1960.

The amendment and affidavit submitted after the final rejection has been entered for purpose of appeal. Claims 2 and 3 are now in the case. Claim 1 having been canceled.

The amendment and affidavit have been carefully considered. However, the amended claims are not considered patentable for the same reasons as set forth under (I) of Paper No. 5.

It is noted that in Ex parte Dickinson, Appeal No. 176-85, Serial No. 695,518 assigned to the same interest as the present application the propriety of requesting an affidavit under Rule 204 (of the nature specified in Rule 131) was held to be a valid one by the Board of Appeals.

Applicant contends that because homologues produced by the process of claim 3 have a known utility, that other compounds described as being produced by a process of claim 3 would be "useful". This has been carefully considered. However, it was held in Blicke v. Treves 44 C. C. P. A., 1957 C. D. 133 that

> "while antispasmodic properties of new material might be reasonably deduced from its similarity to known antispasmodics, they could not be foretold with certainty; hence compound is not of such a nature that it was reduced to practice merely by making it."

Therefore utility of the 17α lower alkyl compounds cannot be foretold with certainty merely because the prior art has held the 17 hydrogen homologue to be effective tumor inhibitors.

The statutory period for response terminates six months from the final rejection. See Rule 192.

M. LIEBMAN
Examiner

[fol. 50]

PETITION TO COMMISSIONER, DECEMBER 19, 1960

Hon. Commissioner of Patents
Washington 25, D. C.

Sir:

This is a petition that the Primary Examiner of Mechanized Division A accept petitioner's affidavits under Rule 204(b) and declare a requested interference.

The invention is in a process for synthesizing an old and known compound. Petitioner's application recognizes the compound as being old. A prior publication of Ringold et al (*J. Org. Chem.* 21; 1333-1335, November 1956) describes the same compound, and also its next adjacent homolog, as being hormones and the homolog as having been shown to be an effective tumor inhibitor; and describes a different synthesis. The Ringold patent, with which interference is sought, describes and claims the same new synthesis that petitioner describes and claims, and also recognizes the resulting compound as being old.

Petitioner's process claim 3 is the one submitted for interference. It is an *Ex parte Card & Card* version of claim 1 of the Ringold patent. No question exists as to the identity of process or as to the sufficiency of claim 3 for interference purposes.

In petitioner's affidavits filed under Rule 204(b) as a *prima facie* showing of invention prior to the effective date (Mexican filing date) of the Ringold patent, it is shown that petitioner carried out the new process prior to that critical date and identified the compound.

The Primary Examiner did not question petitioner's showing that he had carried out the process claimed. He did question petitioner's showing of an identification of the compound produced; but that has been answered, and although the Primary Examiner has not yet ruled that the showing is sufficient in that respect, it is believed that it is, and in any event that question will be disposed [fol. 51] of either by the Examiner's acceptance of the showing or by appeal.

The questions presented by this petition arise from the Primary Examiner's ruling that petitioner's showing is insufficient in not including evidence that the old compound has the utility as a hormone, which it was known in the prior art to have. Petitioner's position on that is threefold.

1. Since the compound is old, and known as a hormone and is a homolog of a known tumor inhibitor, and since the invention is in a new process for its production, petitioner is entitled to contest priority as to the process without showing under Rule 204(b) that prior to the critical date he had tested the compound as a hormone and had proved its known utility.

2. In holding that it is necessary to show proof of utility of the old compound, as a pre-requisite of his right to contest priority as to the process, the Primary Examiner made new law as to what constitutes reduction to practice of a new process for producing an old compound; and, in doing so, the Primary Examiner exceeded his authority under Rule 204(b). Whether or not proof of utility of the old compound is a necessary element in proof of reduction to practice of a new process for its production is a question for decision by the Board of Patent Interferences.

3. As a *prima facie* showing of petitioner's right to contest priority, it is enough that there is a new question of law involved as to the legal consequence of the facts shown, and that petitioner's position on it is a reasonable one. The determination of that new question is vested by law (35 U.S.C. 135) in the Board of Patent Interferences, and the Primary Examiner is without authority to refuse to initiate a priority contest on the basis of his view of how the Board of Patent Interferences should decide that question.

The Board of Appeals has no authority greater than that of the Primary Examiner and cannot properly re- [fol. 52] view on appeal questions the Primary Examiner had no jurisdiction to decide.

This is a matter calling for intervention by the Commissioner of Patents because it involves a new question of the meaning, scope and application of Rule 204(b)

and of Section 135 of the Patent Act, and a question of administration going to the division of authority between the Primary Examiner and the Board of Patent Interferences.

The question differs from that decided in *Ex parte Dickinson et al* Appeal No. 176-85, Serial No. 695,518, because here petitioner has filed affidavits showing facts on which he will rely in support of his claim of priority of invention which obviously are unlike the facts of any decided cases, presenting a new, but nevertheless genuine, question of priority for determination.

This petition neither seeks nor requires either (1) a review of the facts shown by petitioner's affidavits, or (2) a decision on the new question of the law of reduction to practice. It seeks only a directive that the Primary Examiner recognize the genuineness of that question of law and leave its determination to the Board of Patent Interferences.

Respectfully submitted,

ELMER J. LAWSON

December 19, 1960

DECISION OF DIRECTOR OF RESEARCH AND PATENT EXAMINING GROUP I, FEBRUARY 1, 1961

This is a petition to the Commissioner under Rule 181 requesting that the Examiner of Mechanized Division A accept the affidavits filed under Rule 204(b) and declare the requested interference.

This application as filed contained a claim copied from the Ringold patent No. 2,908,693 with a request that an interference be declared with the patent. An affidavit [fol. 53] under Rule 204(b) was filed with the application. The first action rejected the claims over art and stated that an affidavit in the nature of one under Rule 131 was necessary to avoid Ringold. Such an affidavit was filed April 1, 1960. The next action was a final rejection on May 24, 1960. The Examiner pointed out certain de-

fects in the new affidavit and made his rejection on the Ringold patent final. Appeal was taken July 26, 1960 and this petition was filed December 22, 1960.

This petition is directed to appealable subject matter as it relates to the propriety of the rejection of the claims over the Ringold patent. Rule 191. The Examiner's holding that the affidavits are insufficient to warrant an interference with the patent in view of certain alleged defects can only be decided by appeal as it is directly involved in the rejection of the claims.

The petition is accordingly dismissed as drawn to nonpetitionable subject matter.

I. G. STONE

Director of Research and
Patent Examining Group 1

EXAMINER'S ANSWER, APRIL 27, 1961

This is an appeal from the final rejection of claims 2 and 3, all the claims in the case.

A correct copy of the appealed claims appears on page 1 of applicant's brief.

The reference of record relied on is:

Ringold et al (I) 2,908,693 Oct. 13, 1959

Reference of record, not relied on, but of interest:

Ringold et al II J. Org. Chem. Nov. 1956 Vol. 21—pages 1333-1335 Copy in Scientific Library

The invention relates to a process for preparing 17 alpha-lower alkyl-2-alpha methyl dihydrotestosterones (claim 3) and specifically a process of making 2 alpha, 17 alpha-[fol. 54] dimethyl androstane-17 beta-ol-3 one (claim 2). The latter compound has been reported in the literature (Ringold et al II article supra) but at that time it had no recognized utility. Claim 3 on appeal, was copied by applicant for purpose of interference with Ringold et al (I) patent No. 2,908,693, cited above; said claim is written in independent form and represents claim 1 of Ringold et al modified to include the limitation of patentee's de-

pendent claim 4. Claim 2, involved in the appeal, has no counterpart in the claims recited in the Ringold et al patent, but is disclosed by Ringold et al. No other references are directly involved in the case.

It should be further noted that although there is no disclosure in the involved application showing the utility of the compounds produced by the processes recited in the appealed claims, this omission is not fatal to applicant's cause since the utility of same was known *prior* to the time the instant application was filed. See column 1, lines 17-26 of the Ringold et al patent which issued October 13, 1959, three months prior to the filing date of the involved Manson application.

The issue revolves around the refusal of the Examiner to permit applicant to enter an interference contest with the Ringold et al patent on the basis of appealed claim 3 and further around the refusal of the Examiner to allow claim 2 over the Ringold et al patent considered solely as a reference. Attention of the applicant is called to the fact that, were claim 2 eventually found to be allowable, even under the present interference practice relating to applicant—patentee situations, 681 O.G. 864 and section 1101.02 of the M.P.E.P., no interference could be declared between applicant and Ringold et al on said claim.

The resolution of the issue on appeal rests on the consideration of the affidavit under Rule 204(b) (in the nature of 131), filed April 1, 1960 by applicant.

[fol. 55] *THE REJECTION*

Claims 2 and 3 are rejected as being obviously fully met by the Ringold et al patent of record which discloses and claims the subject matter of involved claim 3 and discloses the subject matter of involved claim 2. See column 1, line 34 through column 2, line 7, and column 2, lines 23-46.

The above identified affidavit under Rule 204(b) is insufficient to establish priority of invention *relative to the filing date of the patentee*, in accordance with the provisions of said rule for the reasons that:

1. It fails to disclose any utility for 2 alpha, 17 alpha-dimethyl-androstan-17 beta-ol-3-one, the final product, shown in the affidavit.

2. It fails to show that said final product was known to have any utility prior to the effective date of the reference.

(In order to reduce the number of issues on appeal, the holding of insufficiency of the affidavit under Rule 204(b) for reasons given in the last paragraph on page 2, of the final rejection is hereby withdrawn.)

RESPONSE TO APPELLANT'S ARGUMENTS

On page 3 of the brief, it is contended that the claimed process is useful because it affords a known steroid and in re Nelson et al 126 U.S.P.Q. 242 is cited in support of said contention. The portions of said decision cited, (on page 4 of the brief) out of context, do not fully set forth the position of the Court in said case. In addition, in order to establish priority of invention under Rule 204(b) by way of an affidavit in the nature of Rule 131, See #24 therein a specific utility must be shown [,] ^ [accompanied by a successful reduction to practice pursuant to such utility.] This is lacking in the affidavit considered herein. With regard to the Nelson case, [fol. 56] the Court specifically held in 758 O.G. at page 239, column 2, (10) that "in keeping with the policy and spirit of this law (35 U.S.C. 112), *the rule of the Bremner case requires*, as a minimum, that the inventor "indicate" a use for a new composition". In the Nelson case, the Court found a utility in the specification sufficient to satisfy 35 U.S.C. 112. In the instant affidavit, the utility is absent. Applicant therefore argues that he has reduced to practice an old steroid. No utility of the old steroid is shown in the affidavit, however.

[Matter enclosed between brackets erased in copy.]

Applicant therefore contends that the product of the process was known to have utility prior to the effective date of the reference patent and refers to the Ringold et al II article supra. In the paragraph bridging pages 4 and 5 of the brief, applicant concedes an important point; namely, whereas compounds "Ia and IIa have already been shown to be very effective tumor inhibitors", *these compounds are not the compounds produced by the process of the appealed claims nor are these* compounds alleged to be final products shown in the affidavit under Rule 204(b). The most that can be said for the Ringold et al article is, as applicant indicates, the final product is a hormone. Said hormone, as of November 1956 had no recognized utility. The article itself points out that as for antitumor properties, the compounds other than Ia and IIa are in the screening process and this screening "*is still in progress*". Furthermore, the term "hormone" is not in the same category as "paint", "adhesive", "detergent", "insecticide", or "fungicide" as treated in In re Johnson 760 O.G. at page 1042, Section (3), citing In re Nelson et al supra.

Thus, as of November 1956, it could not be urged that the compounds produced by the process of the appealed claims had admittedly utility. ["The implication is clear that, except for the known utility,
[fol. 57]
tests would have been held to be necessary". Blicke
See v. Treves 1957 C. D. at the top of page 137. No
#24 tests are shown in the affidavit, let alone a showing of a successful reduction to practice.]

It is further urged that the compound described by Ringold et al II as having anti-tumor activity differs from the product of claim 3 only in lacking the 17 beta methyl substituent. Thereafter, on pages 5 and 6, applicants advance propositions which are not germane to establishing priority under Rule 204(b) but are directed to patentability, as to the homology doctrine. The doctrines of Hass et al and Henze have no applicability here. [As was stated

[Matter enclosed between brackets erased in copy.]

in Blicke v. Treves supra, at the top of page 138, "it is evident that while the anti-spasmodic properties of a new material might be reasonably deduced from its similarity to known antispasmodics, they could not be foretold with certainty; and that fact is apparent from the record here which shows that appellant and his associates subjected the new material to very extensive tests. For the reasons given, we hold that the instant compounds are not of such a nature *that they were reduced to practice merely by making them.* It remains to be considered whether the tests carried out by or on behalf of appellant were sufficient to effect a reduction to practice". Again, there is nothing in the entire record of this case to demonstrate a sufficient reduction to practice of the compound produced by the process of applicant *prior to the effective date of the reference patent.*]

See #24

Applicant attempts to explain away Blicke v. Treves, on the ground that, there, the products themselves were being claimed while in the instant case, only a process is involved. Again, the Court in said decision clearly stated that "a composition [fol. 58] of matter cannot be a patentable invention unless it has utility, (citing in re Bremner 1950 C.D. 342). Accordingly, the invention of such a composition is not complete unless its utility is either obvious or is established by proper tests, regardless of whether the claims contain any specific reference to utility. In the Bremner case, the Court held, "it was never intended that a patent be granted upon a product, or a process of producing a product, unless such product be useful". This requirement cannot be less stringent when applied to a showing submitted under Rule 204(b) in the nature of an affidavit under Rule 131.

See supra #24

[Matter enclosed between brackets erased in copy.]

Thus, it is concluded, applicant has not made a prima facie showing of reduction to practice prior to the filing date of the Ringold et al patent.

It is submitted that the rejection is proper and should —sustained.

Respectfully,

L. H. GASTON
Examiner

EXAMINER'S ANSWER, MAY 24, 1962

This application has been remanded by the Board of Appeals to the Primary Examiner in view of termination of the case, In re Dickinson et al, 49 CCPA ——, 133 U.S.P.Q. 39, in the Court of Customs and Patent Appeals.

In view of the decision in the cited case, particular—that portion which states that Blicke v. Treves, 1957 C. D. 133, 112 U.S.P.Q. 472 is clearly distinguishable from the Dickinson case and necessarily from the instant case involving a similar issue, *as to claim 3 only* the Examiner's Answer of April 27, 1961, paper No. 17 is modified to the extent indicated below:

1. On page 4, line 2 after "shown", the comma has been cancelled and the word "therein" has been substituted for the phase "accompanied - - - utility".

[fol. 59] 2. On page 5, first full paragraph, the last two sentences have been deleted.

3. On page 5, second full paragraph, beginning with line 8, the entire language from "as was stated - - - patent" (the latter underlined word on page 6, line three), has been deleted.

4. On page 6, first full paragraph, line 2 after "Treves", the phase ", supra," has been inserted.

Suffice it to say, the Dickinson case supports the position of the Primary Examiner herein since in the language of the Court in 113 U.S.P.Q. at page 43, col. 2, paragraph (5), "In stating in their third affidavit that 'the utility was obvious to us at the time we submitted

the compound for testing which was prior to August 16, 1955,' appellants completed their prima facie case".

For reasons given in the Examiner's Answer, since no utility was shown in the pertinent Manson affidavit involved herein, instant *applicant has not completed his prima facie case.* Nor can a "presumption of utility" *dehors the affidavit,* as is set forth in the paragraph bridging pages 5 and 6 of applicant's brief, replace an allegation of obvious utility or results of actual successful tests *prior to the effective date* of the Ringold patent *in the affidavit itself.*

In order to complete the record and present clear well defined issues to the Board of Appeals, and further, in view of the second full paragraph on page 2 of the Examiner's Answer, it is submitted that for reasons given therein, (attention being now directed to Rosen et al. v. Hjerpe, Interference No. 76,808, patent No. 2,046,951 and Barr et al v. Schildknecht, Interference No. 89,184, patent No. 2,991,278), the only Manson affidavit in issue, paper No. 4 *must* be considered solely as an affidavit under Rule 131 with respect to claim 2 and as an affidavit under Rule 204(b) in the nature of 131, as to claim 3.

Since the same affidavit has been held insufficient under Rule 204(b), a fortiori, it is indeed insufficient under [fol. 60] Rule 131 where the requirements may be more stringent, In re Dickinson supra, and Bliche v. Treves supra, taken together with Ex parte Grosselin 1901 C. D. 248.

Thus, questions a), b) and c) posed on page 9 of the applicant's brief must be answered in the negative.

This application is returned to the jurisdiction of the Board of Appeals.

Respectfully submitted,

M. LIEBMAN
Acting Examiner, Mech A.

Letter Dated, June 8, 1962

Hon. Commissioner of Patents
Washington 25, D. C.

Sir:

In reply to the Examiner's Answer on Remand, mailed May 24, 1962, there is submitted herewith a Supplementary Affidavit under Rule 204(b) by appellant. This affidavit avers that prior to December 16, 1957, the filing date of Ringold et al. U.S. Patent 2,908,693, the utility of the process of Claim 3 was obvious to appellant. It is submitted that the only deficiency in the Rule 204(b) affidavit, under the criteria set forth in *In re* Dickinson et al., 133 USPQ 39, has now been rectified, that appellant has now completed his prima facie case, and that the application is now in condition for the declaration of interference with the Ringold et al. patent.

In the light of the timing of the *In re* Dickinson et al. decision (handed down by the CCPA on March 22, 1962) and the peculiar situation here where the utility of the claimed process is derived from the prior art [Ringold et al., J. Org. Chem. *21*, 1333 (1956)], it is respectfully submitted that the supplementary affidavit could not have been presented earlier as the need therefor was not apparent to appellant.

[fol. 61] It is respectfully requested that this application be remanded to the Primary Examiner for consideration of the new affidavit and to take the necessary steps to institute interference.

Respectfully submitted,

ANDREW JOHN MANSON

By Thomas L. Johnson
His Agent

June 8, 1962

Supplementary Affidavit of Manson, Dated June 8, 1962

State of New York)
) ss.:
County of Rennsselaer)

I, Andrew John Manson, being duly sworn, depose and say:

That I am a citizen of Canada, residing at the Town of North Greenbush, County of Rensselaer, State of New York;

That I am the applicant in the above-identified U.S. patent application, Serial No. 3693, filed January 20, 1960;

That, prior to December 16, 1957, I had read the article by Ringold et al., J. Org. Chem. *21*, 1333 (1956);

That, prior to December 16, 1957, the utility of the process of Claim 3 of my application was obvious to me;

And further I say not.

ANDREW JOHN MANSON

Sworn to and subscribed before me this 8th day of June, 1962.

ANNA C. CARD
Notary Public, State of New York
Qualified in Albany County
(SEAL) Commission Expires March 30, 1964

[fol. 62]

Letter Dated, August 6, 1962

Hon. Commissioner of Patents
Washington 25, D. C.

Sir:

Pursuant to an interview granted by the Examiner to appellant's representative on or about July 25, 1962, a

supplementary affidavit by appellant is submitted herewith. This affidavit supplements the Supplementary Affidavit under Rule 204(b), dated June 8, 1962, in that it elaborates upon the obviousness of the utility of the claimed process and the utility of the old product produced thereby.

It is submitted that this application is now in condition for favorable reconsideration upon remand from the Board of Appeals (paper No. 27, July 3, 1962).

Respectfully submitted,

ANDREW JOHN MANSON

By THOMAS L. JOHNSON
His Agent

Rensselaer, New York
August 6, 1962

SUPPLEMENT TO SUPPLEMENTARY AFFIDAVIT OF MANSON, DATED AUGUST 6, 1962

County of Rensselaer)
) ss.:
State of New York)

I, ANDREW JOHN MANSON, being duly sworn, depose and say:

THAT I am a citizen of Canada, residing at the Town of North Greenbush, County of Rensselaer, State of New York;

THAT I am the applicant in the above-identified U. S. patent application, Serial No. 3693, filed January 20, 1960;

[fol. 63] THAT, prior to December 16, 1957 the utility of the process of Claim 3 of my application was obvious to me in that it would produce 2α,17α-dimethylandrostan-17β-ol-3-one the utility of which as a hormone analog as

described in the article by Ringold et al., J. Org. Chem. *21*, 1333 (1956) was obvious to me;

And further I say not.

ANDREW JOHN MANSON

Sworn to and subscribed before me this 6th day of August, 1962.

ANNA C. CARD
Notary Public, State of New York
Qualified in Albany County
(SEAL) Commission Expires March 30, 1964

EXAMINER'S ANSWER, AUGUST 27, 1962

This application has again been remanded to the Primary Examiner in view of the communication and supplementary affidavit under Rule 204(b) filed June 11, 1962. The latter affidavit has been further supplemented by an affidavit filed on August 7, 1962.

In the "Examiner's Answer on Remand", dated May 24, 1962, it was noted that the present applicant did not complete his prima facie case under Rule 204(b) since there was no allegation of obvious utility or results of actual successful tests prior to the effective date of the Ringold patent in the affidavit itself. In re Dickinson et al., 1933 U. S. P. Q. 39, was therefore held to support the Examiner's position.

The supplementary affidavit under Rule 204(b), filed June 11, 1962, fails to correct the utility deficiency in the Rule 204(b) affidavit filed April 1, 1960 since no utility for the *final product* produced by the process of claim 3 is alleged therein. The statement to the effect that "the utility of the process of claim 3 * * * was ob- [fol. 64] vious to me" can be given no weight since the product of said process had no known utility prior to the effective date of the Ringold patent.

In a further attempt to complete his prima facie case, as required by In re Dickinson et al., supra, another affidavit supplementing the affidavit of June 11, 1962 was

submitted by applicant on August 7, 1962. This newly presented affidavit states that,

> "prior to December 16, 1957 the utility of the process of claim 3 of my application was obvious to me in that it would produce 2α, 17α-dimethylandrostan-17β-ol-3-one the utility of which as a hormone analog as described in the article by Ringold et al., J. Org. Chem. *21*, 1333 (1956) was obvious to me".

The above equally fails to complete a prima facie case since the term "hormone analog" is not synonymous with any specific utility being inclusive of androgens, estrogens, progestins, andreno-corticoids, etc. As pointed out by the Examiner in his Answer of April 27, 1961, the term "hormone" is not in the same category as "paint", "adhesive", "detergent", etc. as treated in In re Johnson, 127 U. S. P. Q. 216, citing In re Nelson, 126 U. S. P. Q. 242. It should again be noted that the Ringold et al. article, supra, merely establishes the fact that the final product of appealed claim 3 is a hormone.

For the reasons above, it is the judgment of the Examiner that applicant has not completed a prima facie case under Rule 204(b) and therefore the rejection of the claims for reasons given in the Examiner's Answer has not been obivated.

This application is returned to the jurisdiction of the Board of Appeals.

Respectfully submitted,

M. LIEBMAN
Acting Examiner

[fol. 65]

DECISION OF BOARD OF APPEALS, SEPTEMBER 26, 1962

Before Surle and Magil, Examiners-in-Chief, and J. S. Bailey, Acting Examiner-in-Chief.

J. S. Bailey, Acting Examiner-in-Chief.

This is an appeal from the final rejection of claims 2 and 3, the only claims remaining in the application. The rejected claims read as follows:

2. A process for preparing 2α,17α-dimethylandrostan-17β-ol-3-one comprising hydrogenating 2-hydroxymethylene-17α-methylandrostan-17β-ol-3-one in the presence of a palladium catalyst.

3. A process for the production of a 17α-lower alkyl 2α methyl dihydrotestosterone comprising hydrogenating a 17α-lower alkyl 2-hydroxymethylene dihydrotestosterone in the presence of a hydrogenation catalyst selected from the group consisting of palladium and platinum catalyst.

The reference relied upon is:

Ringold et al. (I) 2,908,693 Oct. 13, 1959

The following reference of record is referred to by both appellant and the Examiner:

Ringold et al. (II) J. Org. Chem. Nov. 1956 Vol. 21—pages 1333-1335

Claim 3 corresponds to claim 4 of the above Ringold et al. patent and has been made for the purpose of provoking an interference with that patent. The above cited Ringold et al. publication discloses the product of claim 2 (a species within the scope of claim 3) and states that the anti-tumor screening thereof is still in progress while certain other related compounds have already been shown to be very effective tumor inhibitors. Appellant has filed affidavits under the provisions of Rule 204 (b), which, it is urged, establish *prima facie* that he made the invention [fol. 66] defined in claim 3 prior to the filing date of the Ringold et al. patent.

The Examiner has not accepted the affidavits as showing that appelant has made this invention prior to the filing date of the Ringold et al. patent in that they fail to show either that the product of the claimed process was known to have utility or that appellant had established its utility prior to the filing date of the patent. As a consequence, the Examiner has rejected both claims 2 and 3 as obviously fully met by Ringold et al.

It does not appear that the Examiner questions the affidavits filed under the provisions of Rule 204 (b) except as to the showing relative to the utility of the compounds

produced by the process of claim 3. The issue presented is whether the affidavits are sufficient in the respect. Appellant's principal arguments presented in his brief and at the oral hearing may be summarized as follows:

(I) A new and unobvious process of preparing an old compound is inherently useful, even though the compound itself may have no known utility;

(II) The fact that the product of the method claimed has been described as a hormone and the adjacent homologue of the product is also known and has been described as a tumor inhibitor is sufficient to satisfy the statutory requirement of tility; and,

(III) That our conclusion in this case should be governed by the holding of the Court of Customs and Patent Appeals in their decision in *In re* Dickinson and Zenitz, 133 USPQ 39; 780 O. G. 13; 299 F. (2d) 954 and that the showing made in the affidavits filed meet the requirements set forth in this decision as establishing a *prima facie* case of a reduction to practice of the claimed invention.

We shall first consider whether the holding in *In re* Dickinson and Zenitz, *supra*, is controlling on the facts [fol. 67] here. There the court held that by stating in their third affidavit that the utility was obvious to them at the time they submitted the compound for testing and prior to the filing date of the reference patent the appellants there had completed their *prima facie* case. In the third affidavit referred to in that decision, it was stated:

> "* * * the utility of ethyl 1-methyl-4-phenlisonipecotate N-Oxide hydrochloride [claim 4] as an analgesic agent was obvious to us prior to the time we made the compound and prior to August 16, 1955, the filing date of Tiffany, U. S. Patent 2,785,168; * * *"

In an affidavit filed August 7, 1962 in this case (Paper No. 28), appellant states:

> "THAT prior to December 16, 1957 the utility of the process of Claim 3 of my application was obvious to me in that it would produce 2α,17α-dimethylandro-

stan-17β-ol-3-one the utility of which as a hormone analog as described in the article by Ringold et al., J. Org. Chem. *21*, 1333 (1956) was obvious to me;"

Appellant contends that the above statement relative to the utility of his process meets the requirements of Rule 204(b) as defined by the court in the above mentioned decision.

We note that the affidavit considered by the court in *In re* Dickinson and Zenitz, *supra*, was that of an analgesic agent. This ascribes a particular physiological effect; that is to say, it was obvious to the affiants that the compound would produce an analgesic effect. Here appellant does not allege that it was obvious to him that the product of the claimed process would have any specified effect but that the obvious utility was "as a hormone analogue." We are constrained to agree with the Examiner that this statement by appellant does not refer to any particular utility or effect. In our opinion this statement in the affidavit merely identifies the class of compounds to [fol. 68] which the product belongs. We find no indication therein that it was obvious to appellant that the product of the process claim would exert any particular effect. For these reasons, it is our opinion that the facts in this case distinguish from those *In re* Dickinson and Zenitz, *supra*, and the affidavits filed under the Rule 204 (b) do not establish a *prima facie* case of a reduction to practice.

Nor, do we believe that the fact that the compounds produced by the process of claim 3 may be hormones and closely related to another hormone shown by the Ringold publication to have utility as a tumor inhibitor can be considered a showing of utility. As pointed out in the Ringold et al. article referred to by appellant and cited above, minor changes in the structure of a steroid may produce profound changes in its biological activity. It is our view that the statutory requirement of usefulness of a product cannot be presumed merely because it happens to be closely related to another compound which is known to be useful.

In support of his contention that the claimed process is inherently useful because it produces a known steroid, ap-

pellant has cited *In re* Nelson et al., 47 CCPA 1031; 758 O. G. 233; 280 F. (2d) 172; 126 USPQ 242; 1960 C. D. 369. We have given careful consideration to appellant's argument on this point but we do not regard this decision applicable to the facts of this case in that the claims were directed to compounds to be used as intermediates in the preparation of other compounds. Since the facts in the *In re* Nelson et al., *supra*, decision are different than those of this case, we are of the view that that decision cannot be held to support the view that a process of preparation of a steroid is useful merely because a product happens to be old. Nor, can this decision support a contention that the steroid produced is useful as an intermediate. This decision does not hold that all compounds are inherently useful as "intermediates."

In Reiners v. Mehltretter, 43 CCPA 1019; 1956 C. D. 399; 711 O. G. 430; 236 F. (2d) 418; 111 USPQ 97, the [fol. 69] Court of Customs and Patent Appeals held that "the literal performance of a claimed method without producing anything useful cannot properly be regarded as a reduction to practice of an invention." As pointed out in Thomas et al. v. Michael et al., 35 CCPA 1036; 1948 C. D. 392; 609 O. G. 696; 166 F. (2d) 944; 77 USPQ 216, where the utility is known, no test is necessary for a reduction to practice. However, we cannot agree that a process is *prima facie* useful merely because the product is disclosed in the literature unless the product was known to be useful.

For the above reasons, we conclude that the affidavit under Rule 204 (b) is not sufficient to establish a *prima facie* case of a reduction to practice of the process of claim 3 and that the rejection of claim 3 is proper and should be sustained. Although claim 2 was not copied from the Ringold et al. patent, we believe that our holding as to claim 3 applies also to claim 2. As was the case in *In re* Hidy & Phillips, 133 USPQ 650; 782 O. G. 16, we believe that claim 2 is actually drawn to the same invention as claimed by Ringold et al., as it differs from claim 4 of that patent in scope only. The rejection of claim 2 will also be sustained.

The decision of the Examiner is affirmed.

AFFIRMED

Notice of Appeal to United States Court of Customs and Patent Appeals, November 23, 1962

Honorable Commissiobner Of Patents
Washington 25, D. C.

Sir:

You are hereby notified of my appeal to the United States Court of Customs and Patent Appeals from the decision of the Board of Appeals rendered 1962 November 26 rejecting Claims 2 and 3 of my above entitled application and refusing me a patent for the invention set forth therein.

[fol. 70] The following are assigned as reasons of appeal:

1. The Board of Appeals erred in affirming the rejection by the Primary Examiner of Claims 2 and 3 as unpatentable over Ringold et al., U.S. Patent 2 908 693.
2. The Board of Appeals erred in holding the affidavits filed under the provisions of Patent Office Rule 204 (b) insufficient to establish a *prima facie* case of invention of the claimed subject matter by applicant-appellant prior to the filing date of the reference patent.
3. The Board of Appeals erred in failing to hold:

   (I) A new and unobvious process of preparing an old compound is inherently useful, even though the compound itself may have no known utility;

   (II) The fact that the product of the method claimed has been described as a hormone and the adjacent homologue of the product is also known and has been described as a tumor inhibitor is sufficient to satisfy the statutory requirement of utility; and,

   (III) That its conclusion in this case should be governed by the holding of the Court of Customs and and Zenitz, 133 USPQ 39; 780 O.G. 13; 299 F. (2d) 954; 49 CCPA; and that the showing made in the affidavits filed meet the requirements set forth in said

decision as establishing a *prima facie* case of the reduction to practice of the claimed invention.

Respectfully submitted,

ELMER J. LAWSON

ELMER J. LAWSON, Agent

DEAN LAURENCE

DEAN LAURENCE
Attorney for Appeal

[fol. 71]

REQUEST FOR EXTENSION OF TIME AND APPROVAL THEREOF, JANUARY 4, 1963

The Honorable Commissioner of Patents
Washington 25, D. C.

Sir:

Andrew John Manson, by his attorney, hereby petitions that the date when his Petition of Appeal Under CCPA Rule 25 must be filed with the CCPA be extended for approximately 30 days until 1963 February 11.

This extension is sought because the certified copy of the transcript, which must be filed in the CCPA as part of the Petition of Appeal, cannot be ready by the presently required date. Due to delays in transmission of documents from petitioner's agent to the attorney who will handle the CCPA appeal occasioned by the recent Christmas vacation, Petitioner filed his "Request Under Rule 301 To Furnish Certified Transcript" in the Patent Office on 1963 January 4, and normally more time is required to complete a certified transcript.

Extension of time
to Feb 11 1963
Granted
Jan 8—1963
EDWIN L. REYNOLDS
First Assistant Commissioner

It is believed that this extension will afford ample time for the Patent Office photostat department to complete the requested certified transcript and transmit it to the CCPA.

Respectfully,

ELMER J. LAWSON

ELMER J. LAWSON, Agent

DEAN LAURENCE

DEAN LAURENCE

Attorney for the appeal to the CCPA

[fol. 73]

United States Patent Office

2,908,693
Patented Oct. 13, 1959

1

2,908,693

PROCESS FOR THE PRODUCTION OF 2-METHYL-DIHYDROTESTOSTERONES

Raoul J. Ringold and George Rosenkranz, Mexico City, Mexico, assignors to Syntex S.A., Mexico City, Mexico, a corporation of Mexico

No Drawing. Application December 16, 1957
Serial No. 702,760

Claims priority, application Mexico December 17, 1956

4 Claims. (Cl. 260—397.4)

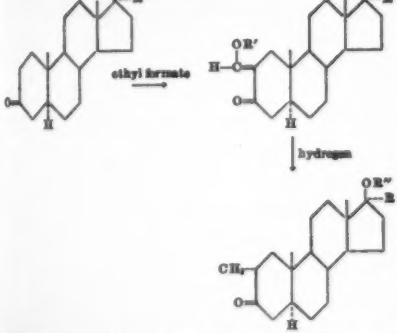
The present invention relates to a novel process for the production of cyclopentanophenanthrene derivatives.

More particularly the present invention relates to a process for the production of 2-methyl dihydrotestosterone derivatives and esters thereof as well as 2-methyl dihydrotestosterone derivatives having a C–17 lower alkyl group. The products of the process of the present invention have a useful high anabolic-androgenic ratio and are especially valuable for treatment of those ailments where an anabolic or antiestrogenic effect together with a lesser androgenic effect is desired.

In our U.S. application Serial No. 636,860, filed January 29, 1957, there is disclosed a process for the production of 2-methyl androstane compounds having a C–17 lower alkyl group involving preparing the corresponding 2-hydroxymethylene derivatives, transformation of these derivatives into 2-methyl-2'-formyl compounds and removal of carbon monoxide to prepare the 2-methyl product.

In accordance with the present invention it has been discovered that 2-methyl androstane compounds or dihydrotestosterone derivatives may be prepared by a simple one step process involving catalytic hydrogenation of the corresponding 2-hydroxymethylene starting material. In its more specific aspects the process therefore involves treating dihydrotestosterone or a 17-lower alkyl dihydrotestosterone as with ethyl formate and sodium hydride to form the corresponding 2-hydroxymethylene derivative and catalytically hydrogenating the 2-hydroxymethylene derivative. Further it has been discovered that catalytic hydrogenation of a 2-acyloxymethylene derivative also produces the desired 2-methyl compounds.

The process of the present invention may therefore be illustrated by the following equation:



In the above equation R represents hydrogen or R represents a lower alkyl group of less than 7 carbon

2

atoms such as methyl, ethyl or propyl. R' represents an acyl group of a hydrocarbon carboxylic acid of 2 to 12 carbon atoms as conventional in esterified steroid alcohols such as acetoxy, propionoxy, benzoyloxy etc. or R' represents hydrogen. R'' represents hydrogen when R is a lower alkyl group and is either hydrogen or an acyl group similar to R' when R is hydrogen.

In practicing the process as outlined above, dihydrotestosterone, or a 17-lower alkyl dihydrotestosterone, such as 17-methyl dihydrotestosterone or 17-ethyl dihydrotestosterone (which may be prepared by treatment of the known testosterone, 17-methyl testosterone or 17-ethyl testosterone with an alkali metal in liquid ammonia for example) are suspended in an inert organic solvent such as benzene and then mixed with ethyl formate and sodium hydride. The mixture is then stirred for a period of time of the order of 5 hours at room temperature and under nitrogen atmosphere. The suspension is then filtered and the mixture of the sodium salt of the desired hydroxymethylene compound is then treated with acid such as hydrochloric acid to precipitate the hydroxymethylene compound.

The hydroxymethylene compound thus prepared may then be conventionally esterified to form a diester of a conventional type as previously set forth when the 17-hydroxy group of the starting compound is secondary or a monester if the 17-hydroxy group is tertiary (as in 17-lower alkyl derivatives). The hydroxymethylene compound or the ester thereof in organic solvent solution is then hydrogenated in the presence of a hydrogenation catalyst preferably at room temperature and atmospheric pressure until absorption of hydrogen ceased.

Suitable organic solvents for the hydrogenation step are for example lower aliphatic alcohols such as methanol, ethyl acetate, dioxane or acetic acid. Preferable hydrogenation catalysts are palladium or platinum catalysts such as palladium on charcoal or palladium on barium sulfate or platinum oxide. This hydrogenation step produces the corresponding 2-methyl compound from either the ester of or the free hydroxymethylene compound and leaves any 17-ester group intact. The resultant crude 2-methyl products were then purified by chromatography. Where the free hydroxymethylene derivatives were being treated or when a free 2α-methyl product was desired it was found desirable to treat the crude hydrogenation product with alkali prior to chromatography.

The following specific examples serve to illustrate but are not intended to limit the present invention.

Example 1

A suspension of 10 g. of dihydrotestosterone in 500 cc. of anhydrous benzene free of thiophene was mixed with 10 cc. of ethyl formate and 3 g. of sodium hydride and the mixture was stirred for 5 hours under an atmosphere of nitrogen and at a temperature of approximately 25° C. The resulting suspension was filtered, the resulting mixture of the sodium salt of the hydroxymethylene compound and the excess of sodium hydride was washed with benzene and dried. This mixture was slowly added to a vigorously stirred solution of 20 cc. of concentrated hydrochloric acid in 500 cc. of water, and the stirring was continued for 30 minutes at the end of which the precipitate was collected and well washed with distilled water. After drying in vacuo, there was obtained 9.7 g. of 2-hydroxymethylene-dihydrotestosterone.

7 g. of 2-hydroxymethylene-dihydrotestosterone was dissolved in 300 cc. of methanol and mixed with 2.5% of a 10% palladium on charcoal catalyst. The mixture was hydrogenated at approximately 25° C. at atmospheric pressure until the absorption of hydrogen ceased. The catalyst was removed by filtration, 1 g. of potassium hydroxide in 5 cc. of water was added to the solution which

was then kept for 1 hour at room temperature. 2 cc. of acetic acid was added, the solvent was completely removed under reduced pressure, water was added to the residue and the product was extracted with methylene dichloride. The extract was washed with water, dried over anhydrous sodium sulfate and evaporated to dryness under vacuum. The residue was dissolved in benzene and transferred to a chromatographic column with 125 g. of alkaline alumina. The column was washed with successive fractions of 100 cc. of benzene, whereupon the desired product was eluted from fractions 2 to 6. After evaporating the solvent, the product was crystallized from a mixture acetone hexane to yield 3.3 g. of pure 2α-methyl-dihydrotestosterone.

Example II

1 g. of 2-hydroxymethylene-dihydrotestosterone, obtained in accordance with Example I, dissolved in 50 cc. of acetic acid was hydrogenated with 1.0 g. of 10% palladium on charcoal catalyst under the conditions described in the previous example. After removing the catalyst by filtration, the solvent was evaporated to dryness under reduced pressure and the residue was mixed with 100 cc. of methanol and 1 g. of potassium hydroxide. The solution was refluxed for 30 minutes and then diluted with water and extracted with methylene dichloride. The extract was washed with water to neutral, dried over anhydrous sodium sulfate and evaporated to dryness under vacuum. The residue was dissolved in benzene and chromatographed under the conditions described in Example I. There was thus obtained 2α-methyl-dihydrotestosterone.

Example III

A mixture of 1 g. of 2-hydroxymethylene-dihydrotestosterone, obtained in accordance with the method described in Example I, 10 cc. of pyridine and 2 cc. of acetic anhydride was allowed to react at room temperature for 16 hours and then poured into water. The product was extracted with methylene dichloride and washed consecutively with dilute hydrochloric acid, sodium bicarbonate solution and water, dried and evaporated to dryness under reduced pressure. There was thus obtained the diacetate of 2-hydroxymethylene-dihydrotestosterone.

The diacetate was hydrogenated and then worked up by the methods described in the previous examples, thus producing 2α-methyl-dihydrotestosterone, identical to the one obtained in accordance with such examples.

Example IV

Following the method described in the previous examples, 17α-methyl-dihydrotestosterone was converted into 2α,17α-dimethyl-dihydrotestosterone.

Example V

Following the method described in Examples I, II, and III, 17α-ethyl-dihydrotestosterone was converted into 2α-methyl-17α-ethyl-dihydrotestosterone.

Example VI

A mixture of 1 g. of 2-hydroxymethylene-dihydrotestosterone, obtained in accordance with Example I, 10 cc. of pyridine and 2 cc. of propionic anhydride was allowed to react at room temperature for 16 hours and then poured into water. The resulting suspension was heated for 1 hour on the steam bath to hydrolyze the excess of propionic anhydride, cooled and extracted with methylene dichloride. The extract was consecutively washed with dilute hydrochloric acid, sodium bicarbonate solution and water, dried over anhydrous sodium sulfate and evaporated to dryness under vacuum. There was thus obtained the dipropionate of 2-hydroxymethylene-dihydrotestosterone which was treated with hydrogen, in methanol solution, under the conditions described in Example I. When the uptake of hydrogen ceased, the catalyst was filtered and the solution was evaporated to dryness under vacuum. The residue was dissolved in a mixture benzene-hexane, transferred to a chromatographic column with neutral alumina and the product was eluted with mixtures benzene-hexane, gradually increasing the proportion of benzene in the mixture. Crystallization of the eluates from acetone-hexane yielded the propionate of 2α-methyl-dihydrotestosterone.

We claim:

1. A process for the production of compounds selected from the class consisting of 2α-methyl dihydrotestosterone, 17-esters thereof of hydrocarbon carboxylic acids of 2 to 12 carbon atoms and 2α-methyl 17α-lower alkyl dihydrotestosterone comprising hydrogenating the corresponding 2-hydroxymethylene derivatives in the presence of a hydrogenation catalyst selected from the group consisting of palladium and platinum catalyst.

2. The process of claim 1 wherein the starting material is a diester of 2-hydroxymethylene dihydrotestosterone and the product is a 17-ester of 2α-methyl dihydrotestosterone.

3. The process of claim 1 wherein the starting material is 2-hydroxymethylene dihydrotestosterone and the product is 2α-methyl dihydrotestosterone.

4. The process of claim 1 wherein the starting material is a 17α-lower alkyl 2-hydroxymethylene dihydrotestosterone and the product is a 17α-lower alkyl 2α-methyl dihydrotestosterone.

References Cited in the file of this patent

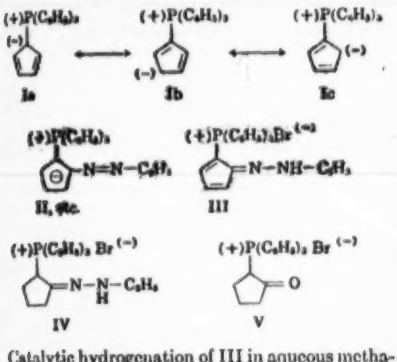
Hogg: J. A. C. S., December 5, 1955, pages 6401–6402.

Communications TO THE EDITOR

A New Type of Azo Compound by Coupling at the Cyclopentadienide Ring

Sir:

We wish to report the preparation of a new type of azo compound, triphenylphosphonium-(2-phenylazo)cyclopentadienylide [II, deep orange, m.p. 239–240°, from benzene; $\lambda_{max.}^{CH_3CN}$ 220 mμ (ε 49,700), 250 mμ (ε 17,000) and 452 mμ (ε 23,500); band at 7.00 μ but no bands at 3.0 or 4.0–6.6 μ; *Anal.* Calc'd for $C_{29}H_{23}N_2P$: C, 80.9; H, 5.4; N, 6.5; P, 7.2; M.W., 430. Found: C, 80.7; H, 5.8; N, 6.8; P, 7.5; M.W., 413]. II resulted, in high yield, from a coupling reaction between the phosphinemethylene[1] (I) and benzenediazonium chloride in an aqueous-methylene chloride system containing sodium acetate. II formed an orange-red *hydrobromide* best formulated as a derivative of cyclopentadienonephenylhydrazone, III [m.p. 232–233°; $\lambda_{max.}^{EtOH}$ 219 mμ (ε 50,800) 227 mμ (ε 46,200), 259 mμ (ε 17,100), 266 mμ (ε 15,700), 273 mμ (ε 10,100), and 446 mμ (ε 26,700); bands at 3.0 and 6.48 μ (strong); *Anal.* Calc'd for $C_{29}H_{23}BrN_2P$: N, 5.5. Found: N, 5.1].



Catalytic hydrogenation of III in aqueous methanol afforded (2-phenylhydrazonocyclopentyl)triphenylphosphonium bromide [IV, colorless, m.p. 204–205°; $\lambda_{max.}^{EtOH}$ 217 mμ (ε 45,400), 225 mμ (ε 40,600), 269 mμ (ε 20,200), and 277 mμ (ε 20,600); bands at 2.92–3.02, 6.25, and 7.00 μ; *Anal.* Calc'd for $C_{29}H_{28}BrN_2P$: C, 67.6; H, 5.5; N, 5.4; Br, 15.5. Found: C, 67.4; H, 5.8; N, 5.8; Br, 16.0.] An authentic sample of IV was independently prepared from phenylhydrazine and (2-oxocyclopentyl)triphenylphosphonium bromide [V, colorless, m.p. 270–272°; $\lambda_{max.}^{EtOH}$ 217 mμ (ε 38,500), 225 mμ (ε 37,500), 257 mμ (ε 10,100), 266 mμ (ε 9,200), and 275 mμ (ε 6,700); bands at 5.80 and 7.00 μ; *Anal.*, Calc'd for $C_{29}H_{28}BrOP$: C, 65.0; H, 5.2. Found: C, 65.3; H, 5.5]. V was prepared from triphenylphosphine and 2-bromocyclopentanone.

This manifestation of aromaticity in the cyclopentadienide ring opens a route to a family of phosphorus-containing azo compounds of remarkably long wave length absorption (azobenzene: $\lambda_{max.}^{CH_3CN}$ 317 mμ (ε 18,100). The substitution on I occurs at a position which preserves the cyclopentadienide system and which gives rise to the longest of the possible conjugated systems terminating at a phosphorus atom. The dipole moment of II was found[2] to be 6.52 D, as compared with 6.99 D for I.

DEPARTMENT OF CHEMISTRY
COLUMBIA UNIVERSITY
NEW YORK 27, N. Y.

FAUSTO RAMIREZ
STEPHEN LEVY

Received September 4, 1956

(1) F. Ramirez and S. Levy, *J. Org. Chem.*, 21, 488 (1956).

(2) The dipole moments were measured by Prof. M. T. Rogers of Michigan State University and will be the subject of a separate communication.

Steroids. LXXXIII.[1] Synthesis of 2-Methyl and 2,2-Dimethyl Hormone Analogs

Sir:

The discovery that profound changes in biological activity may be effected by removal of the steroid C-10 angular methyl group[2] or by shift of the group from C-10 to C-1[3] prompted us to investigate steroid analogs with additional alkyl substituents in other parts of the molecule. This communication is concerned with the synthesis of a number of 2-methyl and 2,2-dimethyl substituted testosterone and dihydrotestosterone derivatives,[4] compounds of great interest due to the discovery that certain members of this series have been found to be mass-

(1) Paper LXXXII. H. J. Ringold, E. Batres, O. Mancera, and G. Rosenkranz, *J. Org. Chem.*, 21, December 1956.

(2) *Cf.* (a) C. Djerassi, L. Miramontes, and G. Rosenkranz, *J. Am. Chem. Soc.*, 75, 4440 (1953); (b) C. Djerassi, L. Miramontes, G. Rosenkranz, and F. Sondheimer, *J. Am. Chem. Soc.*, 76, 4092 (1954); (c) C. Huggins, E. V. Jensen and A. S. Cleveland, *J. Exp. Med.*, 100, 225 (1954); (d) A. Sandoval, G. H. Thomas, C. Djerassi, G. Rosenkranz and F. Sondheimer, *J. Am. Chem. Soc.*, 77, 148 (1955).

(3) (a) H. J. Ringold, G. Rosenkranz, and F. Sondheimer, *J. Am. Chem. Soc.*, 78, 2477 (1956); (b) C. Djerassi, A. E. Lippman, and J. Grossman, *J. Am. Chem. Soc.*, 78, 2479 (1956).

(4) Presented in part at the 129th meeting of the American Chemical Society, Dallas, April 1956.

ive inhibitors of the development of a transplantable rat mammary tumor.[5]

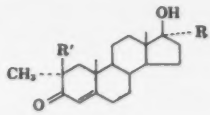
The sodium hydride catalyzed condensation, in benzene solution, of ethyl oxalate with testosterone, androstan-17β-ol-3-one, 17α-methyltestosterone, and 17α-methylandrostan-17β-ol-3-one gave the corresponding 2-ethoxyoxalates (amorphous solids) after acid precipitation of the water-soluble sodio salts. Methylation of the crude free ethoxyoxalates with methyl iodide in boiling acetone containing potassium carbonate gave the corresponding 2-methyl-2-ethoxyoxalates which underwent reversal of oxalate condensation on treatment with ethanolic sodium ethoxide furnishing the 2α-methyl hormone analogs of: testosterone (Ia) (m.p. 155–157°, $[\alpha]_D$ +116°, $\lambda_{max.}$ 242 mμ, log ε 4.19.[6] Found: C, 79.33; H, 10.28). 17α-Methyltestosterone (Ib) (m.p. 150–152°, $[\alpha]_D$ +82°, $\lambda_{max.}$ 240 mμ, log ε 4.21. Found: C, 79.68; H, 10.03). Androstan-17β-ol-3-one (IIa) (m.p. 152–154°, $[\alpha]_D$ +32° (ethanol). Found: C, 78.70; H, 10.77). 2α,17α-Dimethylandrostan-17β-ol-3-one (IIb) (m.p. 151–154°, $(\alpha)_D$ +8°. Found: C, 79.29; H, 10.82).

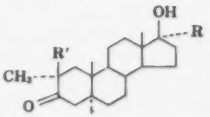
Assignment of the 2-methyl structure in the case of the 3-keto-Δ^4-compounds follows from the established position of oxalate and formate condensation on α,β-unsaturated steroid ketones.[7] The 2α (equatorial) position is assumed from the mode of preparation involving treatment of the final product with strongly alkaline reagent.[8]

That condensation had occurred at C-2 in the dihydroello series was established by conversion of Ia to its C-3 ketal (2α-methyl-3,3-cyclocthylenedioxy-Δ^5-androsten-17β-ol, m.p. 175–178°, $[\alpha]_D$ +41° (pyridine). Found: C, 76.11; H, 9.78) which after hydrogenation in methanol solution over a palladium-carbon catalyst followed by ketal hydrolysis, gave authentic IIa.

Pyridinium chromate oxidation of the ketal of Ia yielded 2α-methyl-3,3-cyclocthylenedioxy-Δ^5-androsten-17-one (m.p. 206–210°, $[\alpha]_D$ +51° (pyr.). Found: C, 76.92; H, 9 38), which was converted to 2α-methyl-17α-ethinyl-3,3-cyclocthylenedioxy-Δ^5-androsten-17β-ol (m.p. 224–227°, $[\alpha]_D$ −63° (pyr.). Found: C, 77.85; H, 9.31) by treatment with potassium acetylide and 2α-methyl-17α-ethinyltestosterone (Ic) (m.p. 175–178°, $[\alpha]_D$ +3°, $\lambda_{max.}$ 240 mμ, log ε 4.19. Found: C, 81.02; H, 9.33) was derived by ketal hydrolysis. Hydrogenation of Ic over palladium-calcium carbonate in pyridine solution gave 2α-methyl-17α-vinyltestosterone (Id) (m.p. 159–162°, $[\alpha]_D$ +89°, $\lambda_{max.}$ 240 mμ, log ε 4.20. Found: C, 80.54; H, 9.61) while hydrogenation of Ic in dioxane over the same catalyst, interrupted at two moles, gave 2α-methyl-17α-ethyltestosterone (Ie) (m.p. 141–143°, $[\alpha]_D$ +88°, $\lambda_{max.}$ 240 mμ, log ε 4.21. Found: C, 79.95; H, 10.23).

The 2,2-dimethyl compounds were prepared by direct alkylation of androstan-17β-ol-3-one and of 17α-methylandrostan-17β-ol-3-one with excess methyl iodide and potassium *tert*-butoxide in *tert*-butanol.[9] The mixtures so obtained, in each case, contained about 10% of the 2-monomethyl derivatives IIa and IIb, and 50% of 2,2-dimethylandrostan-17β-ol-3-one (IIc) (m.p. 134–136°, $[\alpha]_D$ +72°. Found: C, 78.84; H, 10.43) and 2,2,17α-trimethylandrostan-17β-ol-3-one (IId) (m.p. 117–120°, $[\alpha]_D$ +53°. Found: C, 78.92; H, 11.12). That these are the 2,2-dimethyl compounds and not the 2,4 or tri- or tetra-methyl derivatives was proven by the following reactions carried out on the C-17 acetate of IIc (m.p. 138–140°). Bromine-acetic acid titration showed uptake of just two moles of bromine. The crystalline dibromo compound (m.p. 180–181°, $[\alpha]_D$ +100°. Found: C, 53.60; H, 6.83; Br, 30.15) on collidine dehydrobromination gave a 4-bromo-Δ^4-3-ketone (2,2-dimethyl-4-bromotestosterone acetate, m.p. 151–153°, $[\alpha]_D$ +82°, $\lambda_{max.}$ 262 mμ, log ε 4.07. Found: Br, 17.92). The monobromo compound [m.p. 146–148°, $[\alpha]_D$ +13° (ethanol). Found: C, 62.59; H, 7.86; Br, 18.47] from treatment of IIc acetate with one equivalent of bromine provided, on collidine dehydrobromination, 2,2-di-





I(a) R = H,	R′ = H	II(a) R = H,	R′ = H
(b) R = Me,	R′ = H	(b) R = Me,	R′ = H
(c) R = —C≡CH,	R′ = H	(c) R = H,	R′ = Me
(d) R = —C(H)=CH₂,	R′ = H	(d) R = Me,	R′ = Me
(e) R = Et,	R′ = H		
(f) R = H,	R′ = Me		

(5) Dr. Charles Huggins, The Ben May Laboratory for Cancer Research, private communication (to be published subsequently).

(6) All melting points are uncorrected. Unless specified otherwise, rotations were determined at 20° in chloroform and the ultraviolet absorption spectra in 95% ethanol. Thanks are due Mr. A. Mijares and Mrs. E. Necoechea for able technical assistance and to Mr. A. Erlin for rotations and spectra.

(7) *Cf.* (a) F. Weisenborn, D. Remy, and T. Jacobs, *J. Am. Chem. Soc.*, 76, 552 (1954); (b) J. A. Hogg, F. H. Lincoln, A. H. Nathan, A. R. Hanze, B. J. Magerlein, W. P. Schneider, P. F. Beal, and J. Korman, *J. Am. Chem. Soc.*, 77, 4438 (1955).

(8) See J. A. Hogg, F. H. Lincoln, R. W. Jackson, and W. P. Schneider, *J. Am. Chem. Soc.*, 77, 6401 (1955).

(9) *Cf.* J. M. Conia, *Bull. soc. chim.*, 600, 943 (1954) for a discussion of related alkylations.

methyltestosterone acetate (IIf acetate) (m.p. 171–173°, $[\alpha]_D$ +44°, $\lambda_{max.}$ 240 mμ, log ε 4.19. Found: C, 77.23; H, 9.81).

While anti-tumor screening of the above described 2-methyl hormones is still in progress, Ia and IIa have already been shown to be very effective tumor inhibitors.

RESEARCH LABORATORIES
SYNTEX, S. A.
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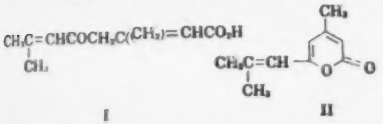
H. J. RINGOLD
G. ROSENKRANZ

2-Pyrones. XXIII. 4-Methyl-6-(2′-methylpropenyl)-2-pyrone

Sir:

We wish to report the synthesis of a new ten carbon isoprenoid lactone which is of interest as a simple multiple of senecioic acid in studies of the biosynthesis of cholestrol from acetate.[1-7] 4-Methyl-6-(2′-methylpropenyl)-2-pyrone (II), the lactone of the enol form of γ-senecioylsenecioic acid (I) has been prepared by the acylation of β-methylglu-



I II

taconic anhydride with senecioyl chloride followed by decarboxylative rearrangement. This is a modification of a synthetic route previously described,[8] but successfully applied here for the first time to an aliphatic acid chloride having over four carbon atoms.

A solution of β-methylglutaconic anhydride in pyridine and ether was treated with senecioyl chloride. Ether extraction of the acidified reaction mixture gave a red oil which was decarboxylated by flash distillation and refractionated to give 12% yield of 4-methyl-6-(2′-methylpropenyl)-2-pyrone, m.p. 46.5–47.5°, (*Anal.* Calc'd for $C_{10}H_{12}O_2$: C, 73.11; H, 7.37. Found: C, 73.08; H, 7.37) showing the 2-pyrone carbonyl absorption band at 1730 cm.$^{-1}$ and the trisubstituted ethylenic absorption band at 840 cm.$^{-1}$. Reaction with bromine gave 3-bromo-4-methyl-6-(2′-methyl-2′,3′-dibromopropyl)-2-pyrone, m.p. 119–120°. (*Anal.* Calc'd for $C_{10}H_{11}Br_3O_2$: C, 29.80; H, 2.75. Found: C, 29.88; H, 3.10) showing the 2-pyrone carbonyl absorption band at 1724 cm.$^{-1}$ shifted slightly as with other 3-substituted types.[9]

Acknowledgment. The authors wish to acknowledge support of this research through grants from the National Science Foundation and the United States Public Health Service.

DEPARTMENT OF CHEMISTRY OF THE COLLEGE OF ARTS AND SCIENCES
UNIVERSITY OF LOUISVILLE
LOUISVILLE 8, KENTUCKY

RICHARD H. WILEY
J. G. ESTERLE

Received October 10, 1956

(1) K. Bloch, L. C. Clark, and I. Harary, *J. Biol. Chem.*, 211, 687 (1954).
(2) J. L. Rabinowitz and S. Gurin, *J. Am. Chem. Soc.*, 76, 5168 (1954).
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(8) R. H. Wiley and N. R. Smith, *J. Am. Chem. Soc.*, 74, 3303 (1952).
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Ozonolysis of Phenanthrene in Chloroform

Sir:

Schmitt, Moriconi, and O'Connor[1] recently claimed the preparation of the first stable monomeric ozonide of an aromatic hydrocarbon. The material was obtained by the ozonolysis of phenanthrene in either chloroform or acetic acid. It melted at 65–90°. It was assigned a monoozonide structure on the basis of elementary analyses, a Rast molecular weight determination, catalytic hydrogenation to 2,2′-biphenyldicarboxaldehyde, and infrared spectra which showed strong bands in the region 5.7–5.9 μ, which Briner[2] had originally ascribed to ozonides.

Criegee[3] has shown that pure simple ozonides, such as the monoozonide of phenanthrene would be, do not absorb in the 5.6–6.2 μ region, which is the carbonyl region. Briner[4] has recently acknowledged the findings of Criegee and ascribed his results to the formation of aldehydes or ketones during the passage of ozone through the reaction mixture.

We have ozonized phenanthrene (5.9 g.) in chloroform (60 ml.) at −60° and have immediately precipitated the product (7.3 g., 98% yield, m.p. 129–130°) by addition of either ligroin or methanol. Several recrystallizations from benzene by addition of ligroin gave an 80% recovery of material melting at 139–141° (*Anal.* Calcd. for $C_{14}H_{10}O_3$: C,[5] 74.33; H, 4.46; Active O, 7.07. Found: C, 74.58; H, 4.80; Active O, 6.95). The material was

(1) Schmitt, Moriconi, and O'Connor, *J. Am. Chem. Soc.*, 77, 5640 (1955).
(2) Briner, *et al.*, *Helv. Chim. Acta*, 35, 340, 345, 353, 1377, (1952); *Helv. Chim. Acta*, 36, 1166, 1757 (1953); *Helv. Chim. Acta.*, 37, 620, 1558, 1561 (1954); *Compt. rend.*, 234, 1032 (1952); *Compt. rend.*, 237, 504 (1953).
(3) Criegee, Kerckow, and Zinke, *Chem. Ber.*, 88, 1878 (1955).
(4) Briner and Dallwigk, *Compt. rend.*, 243, 630 (1956); *Helv. Chim. Acta*, 39, 1446 (1956).
(5) Schmitt, Moriconi, and O'Connor[1] erred in this calculation. Their product, therefore, analyzed 1% low in carbon.

[fol. 81] REJECTED CLAIMS

2. A process for preparing 2α,17α-dimethylandrostan-17β-ol-3-one comprising hydrogenating 2-hydroxymethylene-17α-methylandrostan-17β-ol-3-one in the presence of a palladium catalyst.

3. A process for the production of a 17α-lower alkyl 2α methyl dihydrotestosterone comprising hydrogenating a 17α-lower alkyl 2-hydroxymethylene dihydrotestosterone in the presence of a hydrogenation catalyst selected from the group consisting of palladium and platinum catalyst.

[File Endorsement Omitted]

[fol. 82]

[Minute entry of argument and submission—February 7, 1964 (omitted in printing)]

[fol. 83]

IN THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

October Term 1963

Patent Appeal No. 7140

Serial No. 3,693

IN THE MATTER OF THE APPLICATION OF ANDREW JOHN MANSON

OPINION—June 25, 1964

SMITH, Judge.

The single legal issue presented by this appeal is whether an applicant for a patent on a *new process* for making a *known compound* must establish a utility for such *compound*, in order to satisfy the requirements of Rule 204(b) preparatory to having an interference declared between his application and a prior patent.

It is unnecessary to encumber this opinion with any of the technical details of the process covered by appealed claims 2 and 3 of appellant's application.[1] These claims stand rejected as "obviously fully met" by a patent to Ringold et al.[2] Appealed claim 3 corresponds to claim 4 of the Ringold patent and was so written for the purpose of provoking an interference with that patent. Appealed claims 2 and 3 differ only in scope and we shall therefore treat both claims as one for purposes of this opinion.

As required by Rule 204(b), appellant filed certain affidavits which purported to show that he was prima

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[1] Serial No. 3,693, filed January 20, 1960, for "Preparation of Organic Compounds."

[2] No. 2,908,693, issued October 13, 1959, entitled "Production of 2-Methyl-Dihydrotestosterones."

[fol. 84] facie entitled to an award of priority of invention relative to the filing date of the Ringold patent. Among other things, these affidavits alleged that the compound produced by the claimed process was known in the art and that its utility was obvious to appellant at the time he invented the process. The examiner, however, took the position that the affidavits were deficient in that they did not clearly show a utility for the compound produced by the claimed process and thus that appellant had not shown that he had made a "useful" invention prior to the filing date of the Ringold patent. This position was summarized by the board as follows:

> It does not appear that the Examiner questions the affidavits filed under the provisions of Rule 204 (b) except as to the showing relative to the utility of the compounds produced by the process of claim 3. The issue presented is whether the affidavits are sufficient in the [this?] respect. * * *

The board, placing its reliance on language found in inter partes interference decisions dealing with what constitutes a reduction to practice of an invention, then concluded:

> * * * we cannot agree that a process is *prima facie* useful merely because the product is disclosed in the literature unless the product was known to be useful.

Thus the board would require that before an applicant may have his claims to a new *process* placed in interference to determine the issue of priority of invention pursuant to 35 U.S.C. 135, he must show that a utility for the *compound* produced by the process was known at the time he invented the process. This requirement cannot be jusified in view of 35 U.S.C. 101. As there defined, a process is a separate category of patentable invention. Clearly, a process which operates as disclosed to produce [fol. 85] a known product is "useful" within the meaning of section 101. To add to this section the further requirement that such a process is "useful" only when a

"use" for a known end product is disclosed seems to us to be an improper arrogation of the authority delegated to Congress by the Constitution. Had such a restriction been intended by Congress, we believe it would have been directly stated either in section 101 or in the definition of a process found in section 100(b). We take the omission of any such requirement to be determinative of the issue here.

We had hoped that our views set forth in *In re Dickenson and Zenitz*, 49 CCPA 951, 299 F. 2d 954, 133 USPQ 39, as to the Commissioner's duties and responsibilities under the statutory provisions and the rules of practice here in issue, would have been considered as determinative of the issue here. While we agree with the board that the *facts* in the *Dickinson and Zenitz* case distinguish it from the *facts* here, we think what was there said is pertinent as to the basic legal right of the appellant to have the issue of priority of invention duly determined as provided in section 135. To the end that there shall be no mistake as to the portions of the *Dickinson and Zenitz* opinion which we think should have been applied in this case, they are quoted as follows (49 CCPA at 957-58):

> There is no question but that under 35 U.S.C. 135, the Commissioner is required to initiate interference proceedings by giving notice to the parties whenever, *in his opinion*, an application would interfere with any pending application or with any unexpired patent.
>
> [fol. 86] Further, under 35 U.S.C. 6, subject to the approval of the Secretary of Commerce, he "may establish regulations, not inconsistent with law, for the conduct of proceedings in the Patent Office." Also, it is equally clear that, unless specifically prohibited by law, the Commissioner may delegate his duties.
>
> On the other hand, in performing his duties, the Commissioner cannot usurp the functions of impinge upon the jurisdiction of the Board of Patent Interferences established by 35 U.S.C. 135.

> In applying these principles to the case at bar, it is obvious that the Commissioner could promulgate a rule to cover the factual situation that is presented in this and similar cases. This he did in establishing Rule 204(b). Also, he could delegate to the Primary Examiner and the Assistant Commissioner his responsibilities under Section 135, and they could decide in the first instance whether a prima facie case had been presented by applicant.
>
> * * * *
>
> The "opinion" of the Commissioner that is required in Section 135 pertains to the factual question of whether the claims of the application would interfere with the claims of the patent, and whether a prima facie case had been alleged. The question of priority is to be determined by the Board of Patent Interferences and such factors, as what is necessary to show reduction to practice in a particular case, come within the exclusive jurisdiction of that board. It should be kept in mind, however, that a patentee ought not to be compelled to go through an interference proceeding without reasonable cause.
>
> Although Rule 204(b) indicates that the required affidavit must be in the nature of that specified in Rule 131, obviously, any provision of Rule 131 which requires more than the statute contemplates in connection with a Rule 204(b) proceeding would not be applicable, as in the case at bar. * * *

In the *Dickenson and Zenitz* case we held that for purposes of a prima facie showing of actual reduction to practice of a chemical compound, the utility requirement of section 101 was satisfied by alleging merely that "the [fol. 87] utility [of the claimed compound] was obvious to us at the time we submitted the compound for testing which was prior to August 16, 1955 [the critical date]." It is our opinion that, if the requirement of a prima facie showing of utility of a claimed compound may be satisfied by the statement that such utility was "obvious" at the time the invention was made, then *a fortiori* the

requirement is satisfied where no question is raised as to the operability of the claimed chemical process to produce a known compound.

It seems clear from the present record that the Patent Office refused to accept appellant's affidavits on the philosophical basis that unless a compound is known to be useful, a process for making the compound is not useful under section 101 and hence not patentable. Thus the case of *In re Wilke and Pfohl*, 50 CCPA 964, 314 F. 2d 558, 136 USPQ 435, cited by appellant and argued by both parties, is not directly controlling here since it dealt with the adequacy of the specification with respect to a disclosure of "how to use" under section 112. *Wilke* is of value, however, in that it indicates the recent thinking of this court with respect to utility issues. In *Wilke*, speaking to the section 112 issue, we said:

> * * * We decline to apply to these process claims the statement in the Bremner case from which the Patent Office has extracted the so-called "rule of Bremner," i.e., that the specification must teach a use for the product of a claimed process. Had this been the intent of Congress, we are certain that it would have been so stated in 35 U.S.C. 112. * * *

[fol. 88] The relevant of this statement to the present case seems clear. If, to be patentable, a process must not only produce a product but a product known or proved to be useful, then it follows that an application for a patent on such a process would have to disclose how to use the product. But the holding in *Wilke* is to the contrary. See also *In re Adams et al.*, 50 CCPA 1185, 316 F. 2d 476, 137 USPQ 333.

In the *Bremner case* [*In re Bremner et al.*, 37 CCPA 1032, 182 F. 2d 216, 86 USPQ 74, 75] this court said, "It was never intended that a patent be granted upon a product, or a process producing a product, unless such product be useful." That this statement is correct with respect to *product* claims is beyond doubt. 35 U.S.C. 101. As to wether a specification must show *how to use* the

product of a claimed *process*, however, our holding in *Wilke* made it abundantly clear that it is not necessary so to do. In the present case, our holding that where a claimed process produces a known product it is not necessary to show utility for the product eradicates, as to process claims, whatever remained of the so-called "rule of Bremner" subsequent to our decision in *Wilke*. See also *In re Szwarc*, 50 CCPA 1571, 319 F. 2d 277, 138 USPQ 208.

Neither the solicitor nor appellant has cited a case, nor have we found any, which is contrary to our present holding. To be sure, in *Petrocarbon Ltd.* v. *Watson*, 247 F. 2d 800, 114 USPQ 94 (D.C. Cir. 1957), the court relied on the *Bremner* case in affirming a rejection of certain chemical process claims. However, as we pointed [fol. 89] out in the *Szwarc* case, supra, the decision made no distinction between product and process claims and was based on the insufficiency of the disclosure of how to use the product produced by the claimed process *as required by section 112*. At any rate, for whatever the *Petrocarbon* case may be said to stand, we have already indicated, at some length, our disagreement with it in both the *Szwarc* case and *In re Nelson et al.*, 47 CCPA 1031, 280 F. 2d 172, 126 USPQ 242, and it would serve no useful purpose to labor the point further here.

The law regarding utility has enjoyed an uncommon stability over the years, in contrast to many other areas in the patent law. In the *Nelson* case, supra, we considered in some depth the ancient and persistent requirement of utility as a condition for patentability. As indicated by the many authorities there discussed, a process is "useful," as a matter of law, if it operates as disclosed to produce its intended result or perform its intended function and if it is not, in operation or result, detrimental to the public interest.

As long ago as 1817, in *Bedford* v. *Hunt*, 3 Fed. Cas. 37 (No. 1217) (C.C.D. Mass.), Justice Story articulated the basis for this general statement, when he said:

> * * * By useful invention, in the statute, is meant such a one as may be applied to some beneficial use in society, in contradistinction to an invention, which

is injurious to the morals, the health, or the good order of society. It is not necessary to establish, that the invention is of such general utility, as to supersede all other inventions now in practice to accomplish the same purpose. It is sufficient, that [fol. 90] it has no obnoxious or mischievous tendency, that it may be applied to practical uses, and that so far as it is applied, it is salutary. *If its practical utility be very limited, it will follow, that it will be of little or no profit to the inventor; and if it be trifling, it will sink into utter neglect. The law, however, does not look to the degree of utility; it simply requires, that it shall be capable of use, and that the use is such as sound morals and policy do not discountenance or prohibit.* * * * [Emphasis added.]

And again in the same year, in *Lowell* v. *Lewis*, 15 Fed. Cas. 1018 (No. 8568) (C.C.D. Mass.), Justice Story said:

> * * * All that the law requires is, that the invention should not be frivolous or injurious to the well-being, good policy, or sound morals of society. The word "useful," therefore, is incorporated into the act in *contradistinction to mischievous or immoral.* For instance, a new invention to poison people, or to promote debauchery, or to facilitate private assassination, is not a patentable invention. *But if the invention steers wide of these objections, whether it be more or less useful is a circumstance very material to the interests of the patentee but of no importance to the public.* If it be not extensively useful, it will silently sink into contempt and disregard. * * * [Emphasis added.] [3]

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[3] In commenting on this language, one court has said that "A study of the cases reveals that the legal significance of 'useful' in the patent statute differs from the general conversational connotation of the word." *Cusano* v. *Kotler*, 159 F. 2d 159, 162, 72 USPQ 62 (3d Cir. 1947). In that case the court held that the creation of a new game conforms to the patent requirement of being useful.

See also *Callison* v. *Dean*, 70 F. 2d 550, 21 USPQ 240 (10th Cir. 1934), which held that a device which may be used for innocent amusement possesses utility.

This basic rationale has persisted, unchanged, down to the present day, in this court as well as in the District of Columbia Circuit. As recently as 1961, the District Court for the District of Columbia stated, in *Commonwealth Engineering Co.* v. *Ladd*, 199 F. Supp. 51, 131 USPQ 255, 257:

> [fol. 91] This Court held in Isenstead v. Watson, 157 F.Supp. 7, 115 USPQ 408, that the term "utility" is a broad term and implies, among other things, capacity to perform the function or attain the result claimed by the applicant in his disclosure. It further held that, in connection with a composition of matter, the test of utility is whether the invention will attain the purpose and will operate as disclosed and claimed by the inventor. Similarly, *in connection with an invention consisting of a process or a method, the term utility must necessarily mean whether the process will operate as claimed and will produce the result intended by the inventor.* [Emphasis added.]

In the present case it is admitted that appellant's claimed process meets these requirements. It operates as claimed and produces the result intended by the inventor. In addition, it has not been shown to be contrary to sound morals and policy. To put it another way, appellant's process *works* and is not alleged to be detrimental to the public interest. Under such circumstances, appellant's affidavits under Rule 204(b) have made a legally sufficient prima facie showing as to his actual reduction to practice of the claimed process prior to the filing date of Ringold. He is, therefore, entitled under section 135 to a determination as to the issue of priority of invention.

The decision of the board is *reversed.*

REVERSED

[fol. 92]

* * * *

WORLEY, Chief Judge, dissenting.

The Patent Office has given Manson an opportunity to show that his product is useful. Although that is his obligation he has been either unable or unwilling to do so. Therefore, the Patent Office quite properly rejected his application and should be affirmed.

I am aware of no authority for the novel proposition that a process which produces a useless product is patentable. Such a premise is wholly contrary to the Constitution and I am satisfied Congress did not intend the statutes enacted thereunder to be so construed.

In *In re Oberweger*, 28 CCPA 749, 115 F.2d 826, 47 USPQ 455, this court quoted with approval an earlier statement from *In re Perrigo*, 18 CCPA 1323, 48 F.2d 965, 9 USPQ 154:

> Neither the Patent Office tribunals nor the court may properly grant patents upon a mere possibility that a device might do the things claimed for it and be useful. There must be definiteness. Neither the Constitution nor the statutes contemplate the granting [fol. 93] of patents upon theories, nor giving a monopoly upon intellectual speculations embodied in devices incapable of scientific analysis.

In *Libbey Owens* v. *Celanese*, 57 USPQ 258, the Sixth Circuit Court of Appeals held:

> Controlling is the fact that such method claims are limited to the use of plastic compositions, with the identical ingredients and in the proportions of the three product claims, which have been already held to be insufficiently disclosed and inoperative, and the process, therefore, lacks the further requisite of utility.

I appreciate the fact than Manson's product is a known compound which may—or may not—someday prove to be useful. However, for his process to possess the requisite statutory utility, it must presently be more than a mere invitation to others to determine that it is useful.

[fol. 94]

IN THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

JUDGMENT—Thursday, June 25, 1964

At a session of said court continued and held at the city of Washington, pursuant to adjournment, on this 25th day of June, A. D. 1964.

Present the Honorable Eugene Worley, Chief Judge, and the Honorables Giles S. Rich, I. Jack Martin, Arthur M. Smith and J. Lindsay Almond, Jr., Associate Judges.

The court was opened for business in due form.

Patent Appeal No. 7140

In the Matter of the Application of
Andrew John Manson

Subject Matter:

Preparation of 2-methyl-17a-lower-alkylandrostan-17b-ol-3-ones.

Serial No. 3,693

Said appeal having heretofore been brought on to be heard before the court and due consideration thereon having been had, it is—

ORDERED that the decision of the Board of Appeals be, and the same is hereby, reversed.

[fol. 95]

[Petition for Rehearing Covering 6 Pages Filed July 20, 1964 Omitted From This Print. It Was Denied, and Nothing More by Order, November 5, 1964]

[fol. 96]

IN THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

* * * *

At a session of said court continued and held at the city of Washington, pursuant to adjournment, on this 5th day of November, A. D. 1964.

Present the Honorable Eugene Worley, Chief Judge, and the Honorables Giles S. Rich, I. Jack Martin, Arthur M. Smith and J. Lindsay Almond, Jr., Associate Judges.

The court was opened for business in due form.

Patent Appeal No. 7140

In the Matter of the Application of
Andrew John Manson

ORDER DENYING PETITION FOR REHEARING—
November 5, 1964

Petition for rehearing having been filed on behalf of the Commissioner of Patents and due consideration thereon having been had, it is—

ORDERED that said petition be, and the same is hereby, denied.

[fol. 97]

[Clerk's Certificate to foregoing transcript omitted in printing.]

[fol. 98]

SUPREME COURT OF THE UNITED STATES

No. ———, October Term, 1964

IN THE MATTER OF THE APPLICATION OF ANDREW JOHN MANSON, PETITIONER

ORDER EXTENDING TIME TO FILE PETITION FOR WRIT OF CERTIORARI—February 3, 1965

UPON CONSIDERATION of the application of the Solicitor General,

IT IS ORDERED that the time for filing a petition for writ of certiorari in the above-entitled cause be, and the same is hereby, extended to and including March 5th, 1965.

/s/ Earl Warren
Chief Justice of the United States.

Dated this 3rd day of February, 1965.

[fol. 99]

SUPREME COURT OF THE UNITED STATES

No. 932, October Term, 1964

EDWARD J. BRENNER, COMMISSIONER OF PATENTS, PETITIONER,

v.

ANDREW JOHN MANSON

ORDER ALLOWING CERTIORARI—April 26, 1965.

The petition herein for a writ of certiorari to the United States Court of Customs and Patent Appeals is granted.

And it is further ordered that the duly certified copy of the transcript of the proceedings below which accompanied the petition shall be treated as though filed in response to such writ.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1965 777994 906

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CITATIONS

In the Supreme Court of the United States

OCTOBER TERM, 1964

No. —

EDWARD J. BRENNER, COMMISSIONER OF PATENTS,
PETITIONER

v.

ANDREW JOHN MANSON

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

The Solicitor General, on behalf of the Commissioner of Patents, prays that a writ of certiorari issue to review the judgment of the United States Court of Customs and Patent Appeals entered in this case on June 25, 1964.

OPINION BELOW

The opinion of the Court of Customs and Patent Appeals (App., *infra,* p. 13) is reported at 333 F. 2d 234.

JURISDICTION

The judgment of the Court of Customs and Patent Appeals was entered on June 25, 1964 (App., *infra,* p. 24) and a timely petition for rehearing was denied

on November 5, 1964. On February 3, 1965, the Chief Justice extended the time for petitioning for certiorari to and including March 5, 1965. The jurisdiction of this Court is invoked under 28 U.S.C. 1256.

QUESTIONS PRESENTED

1. Whether this Court has jurisdiction to review on certiorari a decision by the United States Court of Customs and Patent Appeals in a case on appeal from the Board of Appeals of the United States Patent Office.

2. Whether a process which produces a useless product is patentable.

CONSTITUTIONAL AND STATUTORY PROVISIONS INVOLVED

Article I, Section 8, clause 8, of the constitution of the United States provides:

The Congress shall have Power

* * * * *

> To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;

* * * * *

28 U.S.C. 1256 provides:

> *Court of Customs and Patent Appeals; certiorari—*
>
> Cases in the Court of Customs and Patent Appeals may be reviewed by the Supreme Court by writ of certiorari.

35 U.S.C. 101 provides:

> Whoever invents or discovers any new and useful process, machine, manufacture, or compo-

sition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

35 U.S.C. 112 provides:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

* * * * *

STATEMENT

On January 20, 1960, the respondent filed an application with the Patent Office for the purpose of provoking an interference with a patent issued on October 13, 1959 (the Ringold patent, U.S. Pat. No. 2,908,693) and establishing the priority of his discovery. Although the challenged patent and the interference application cover a complex new process for the production of a chemical compound, the technology is irrelevant for present purposes. The compound itself was apparently known to the professional literature before anyone developed the process in suit, but its utility was not yet established. The useful properties of the compound were first disclosed in the

Ringold application, on which the contested patent issued. The question is, therefore, whether respondent, who claims to have first discovered the process, can rightly be said to have made a "useful invention" by developing an original method of producing a chemical compound which, so far as appears, neither he nor anyone else knew to be useful until another (Ringold) rediscovered the process and demonstrated the utility of the end product.

The Patent Office Examiner rejected respondent's application on the ground that he had failed to show that the final product of the process for which he claimed a patent "was known to have any utility prior to the effective date of the reference [the Ringold patent]" (R. 55). The Board of Appeals concurred. It held that a process is not useful *per se* merely because it produces a known product; there must first be a demonstration of known utility for the product (R. 69). But the Court of Customs and Patent Appeals disagreed (App., *infra,* pp. 14–15):

> Thus the board would require that before an applicant may have his claims to a new *process* placed in interference to determine the issue of priority of invention pursuant to 35 U.S.C. 135, he must show that a utility for the *compound* produced by the process was known at the time he invented the process. This requirement cannot be justified in view of 35 U.S.C. 101. As there defined, a process is a separate category of patentable invention. Clearly, a process which operates as disclosed to produce a known product is "useful" within the meaning of section 101. To add to this section the fur-

ther requirement that such a process is "useful" only when a "use" for a known end product is disclosed seems to us to be an improper arrogation of the authority delegated to Congress by the Constitution. Had such a restriction been intended by Congress, we believe it would have been directly stated either in section 101 or in the definition of a process found in section 100(b). We take the omission of any such requirement to be determinative of the issue here.

* * * * *

REASONS FOR GRANTING THE WRIT

In *Glidden Company* v. *Zdanok,* 370 U.S. 530, 578, n. 49, this Court left open the question whether decisions of the Court of Customs and Patent Appeals in patent cases are reviewable on certiorari. In briefs in opposition filed on behalf of the Commissioner of Patents since that decision we have suggested that resolution of the jurisdictional question should await a case presenting a patent issue independently worthy of review. The decision below, holding that a patent may be obtained on a process for the production of a useless product—a holding which is in direct conflict with the decision of the Court of Appeals for the District of Columbia Circuit in *Petrocarbon Ltd.* v. *Watson,* 247 F. 2d 800, certiorari denied, 355 U.S. 955—is, in our view, such a case. The decision, we submit, does violence to the constitutional and statutory standard of patentability and, if permitted to stand, undoubtedly will frustrate medical research and

scientific experimentation in the vital area of pharmacology.

1. In *Postum Cereal Co.* v. *California Fig Nut Co.*, 272 U.S. 693, this Court held that a decision of the Court of Appeals for the District of Columbia Circuit, on appeal from a determination of the Patent Office relating to a patent and trademark application, was not a judicial ruling, but "merely an instruction * * * by a court which is made part of the machinery of the Patent Office for administrative purposes"; accordingly the Court concluded that the decision presented no "case or controversy" within the constitutional jurisdiction of this Court. 272 U.S. at 698–701. That ruling was followed for a time after the jurisdiction of the Court of Appeals for the District of Columbia Circuit over patent and trademark matters was transferred to the Court of Customs and Patent Appeals.[1] See *Pacific Northwest Canning Co.* v. *Skookum Packers' Assn.*, 283 U.S. 858 (trademark case), and *McBride* v. *Teeple*, 311 U.S. 649 (patent case), in which this Court denied certiorari to review decisions of the Court of Customs and Patent Appeals "for want of jurisdiction," citing *Postum Cereal.*[2] Those decisions, however, no longer present an obstacle. Insofar as *Postum Cereal* rests on constitutional grounds, it was overruled in *Glidden Company* v. *Zdanok, supra,* 370 U.S. at 574–579, 605, n. 11. The subsisting question is a statutory one: whether

[1] Act of March 2, 1929, c. 488, Sections 1–4, 45 Stat. 1475, 1476.

[2] In subsequent patent cases, the Court has merely denied certiorari, without more. *E.g.*, *Surrey* v. *Ladd*, 375 U.S. 930.

Congress intended to vest jurisdiction in this Court to review patent rulings of the Court of Customs and Patent Appeals.

Prior to 1948, the only statutory provision authorizing this Court to review decisions of the Court of Customs and Patent Appeals related to customs cases. That provision—Section 195 of the old Judicial Code (36 Stat. 1145), as amended[3]—had two parts, one empowering the Court of Customs and Patent Appeals to hear appeals from the Customs Court in customs cases and a second authorizing this Court to review such decisions. It did not refer to patent or trademark matters. In 1948, with the codification of Title 28 of the United States Code, the two jurisdictional provisions were separated; the first was redesignated Section 1541 and placed alongside the other provisions defining the competence of the Court of Customs and Patent Appeals (including Section 1542 granting it power to review Patent Office decisions); the second, authorizing this Court to review decisions of the Court of Customs and Patent Appeals, was redesignated Section 1256, part of the Chapter devoted to the jurisdiction of the Supreme Court.[4] In the recodification, the language of the latter provision was substantially changed. Instead of confining certiorari jurisdiction in terms to "customs" cases, Section 1256 of the revised Judicial Code now broadly

[3] Section 195 was amended by the Act of August 22, 1914, 38 Stat. 703, and by Section 647 of the Tariff Act of 1930, 46 Stat. 590, 762, 28 U.S.C. (1946 ed.) 308.

[4] The Revisers' Notes to Sections 1256 and 1541 confirm the derivation of those provisions.

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provides for review by this Court of "[c]ases in the Court of Customs and Patent Appeals," apparently without limitation. The question is whether this change in wording, effected without comment by the Revisers or other indication of legislative purpose, is alone sufficient to warrant the conclusion that Congress meant to enlarge this Court's certiorari jurisdiction with respect to the Court of Customs and Patent Appeals.

Because of the absence of legislative history, we have, in the past, expressed doubt whether an expansion of the Court's jurisdiction was intended.[5] We have recognized, however, that the jurisdictional question is important and should be resolved when presented in the context of a patent question independently worthy of review. This is such a case.

It is our present submission that the Court has jurisdiction. The broad language of 28 U.S.C. 1256 may fairly be read, we believe, as permitting review of all cases within judicial cognizance. Now that the constitutional obstacles have been removed, it seems proper to follow the statutory invitation to erase the old distinction between customs and patent cases.

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[5] See the briefs in opposition filed on behalf of the Commissioner of Patents in *Aubrey A. Larsen* v. *David L. Ladd, Commissioner of Patents*, No. 671, Oct. Term, 1961; *In the Matter of the Application of Andrew Alford*, No. 416, Oct. Term, 1962; *Karoline Cauer, et al.* v. *The Honorable Justices of the United States Court of Customs and Patent Appeals*, No. 268 Misc., Oct. Term, 1963; *Alexander R. Surrey, et al* v. *David L. Ladd, Commissioner of Patents*, No. 466, Oct. Term, 1963. *In the Matter of the Application of Friedrich Gruschwitz, et al.*, No. 579, Oct. Term, 1963.

Moreover, the issue of patentability reaches this Court in infringement proceedings and it would be anomalous to deny power to resolve the same question when presented by a more direct route. Much waste is avoided if this Court may, in some circumstances at least, bar the grant of an undeserved monopoly in a promising field for scientific or industrial experimentation.

Constitutional impediments aside, it seems improbable that Congress meant to perpetuate an unusual and harmful barrier to this Court's certiorari jurisdiction. Decisions of the Patent Office are reviewable, by somewhat different procedures, in either the Court of Appeals for the District of Columbia or the Court of Customs and Patent Appeals. Decisions by the former are reviewable on certiorari. Decisions by the latter should also be reviewable, not only to prevent an anomaly, but also to provide a method of eliminating conflict between the two courts.

2. On the merits, we agree with Chief Judge Worley's dissent. He observed that there is "no authority for the novel proposition that a process which produces a useless product is patentable" (App. 22). As the majority itself recognized (reiterating what had already been articulated in *Application of Bremner,* 182 F. 2d 216, 227), the Constitution (Art. I, § 8, cl. 8), as well as 35 U.S.C. 101 (requiring that an invention be "useful" to be patentable) and 35 U.S.C. 112 (requiring that the specification in the application for a patent set forth in exact terms such information as to enable someone "to make and use"

the invention), establishes as a condition precedent to the patentability of "products" a demonstration of utility. Unlike the majority below, however, we can find no basis, either in the Constitution or statutes, to differentiate between products and processes in this respect. Indeed, 35 U.S.C. 101, drawing no such distinction, expressly provides: "Whoever invents or discovers any new and *useful process,* machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, * * *." [Emphasis added.]

To hold that useless discoveries may be rewarded with patent monopolies debases the principle that "[t]he function of a patent is to add to the sum of useful knowledge." *Great Atlantic and Pacific Tea Co.* v. *Supermarket Equipment Co.,* 340 U.S. 147, 152. Compare the government's pending petition in *United States* v. *Bert N. Adams,* No. 906. The development of a process for making a useless product adds nothing to the sum of useful knowledge. All that it does is, first, to enable the developer to block further research into the use of the product or to confine it to those whom he authorizes and, second, if a valuable use is discovered, to give him a monopoly of its manufacture in exchange for only half an invention.

The problem is of great importance in chemical research, especially in the drug industry. One who has invented nothing useful should not be put in a position to discourage, if not control, segments of important areas of medical or pharmaceutical research. Frequently processes for producing complex com-

pounds are developed even though the compound has no known use. Subsequent experimentation may show that the compound is a very valuable drug. That seems to be the case here. The process developed by respondent relates to what was subsequently revealed as a tumor-inhibiting drug. The rule adopted by the court below necessarily closes the door to experimentation with the same or similar processes by persons other than the patentee or those he authorizes. Discouraged by the broad patent which promises to rob them of any reward, those who might undertake the often costly search for beneficial uses of the product are diverted from the forbidden territory and a significant discovery may be lost or long postponed. An intent to risk such injury to the public welfare is not lightly to be inferred.

For these reasons the Patent Office has regularly refused to issue process patents where the product has no known use. Its view was approved by the Court of Appeals for the District of Columbia Circuit in *Petrocarbon Ltd.* v. *Watson,* 247 F. 2d 800, certiorari denied, 355 U.S. 955. Even if the question were not otherwise important, effective judicial administration would require a definitive settlement of the important and recurring question of patent law which divides the two courts with jurisdiction to review directly the decisions of the Patent Office with respect to patentability. See 35 U.S.C. 141, 145–146. An appropriate opportunity to resolve the question in the larger context of related patent problems is presented by other cases on the Court's calendar or pending on petitions

for certiorari. See *Graham* v. *John Deere Co.*, No. 580, certiorari granted, January 18, 1965; *Calmar, Inc.* v. *Cook Chemical Co.*, No. 778, petition pending; *Colgate-Palmolive Co.* v. *Cook Chemical Co.*, No. 810, petition pending; *United States* v. *Bert N. Adams*, No. 906, petition pending.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that the petition for a writ of certiorari should be granted.

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FEBRUARY 1965.

APPENDIX

United States Court of Customs and Patent Appeals

IN THE MATTER OF THE APPLICATION OF ANDREW JOHN MANSON

October Term, 1963

Patent Appeal No. 7140

Serial No. 3,693

June 25, 1964

SMITH, Judge.

The single legal issue presented by this appeal is whether an applicant for a patent on a *new process* for making a *known compound* must establish a utility for such *compound,* in order to satisfy the requirements of Rule 204(b) preparatory to having an interference declared between his application and a prior patent.

It is unnecessary to encumber this opinion with any of the technical details of the process covered by appealed claims 2 and 3 of appellant's application.[1] These claims stand rejected as "obviously fully met" by a patent to Ringold et al.[2] Appealed claim 3 corresponds to claim 4 of the Ringold patent and was so written for the purpose of provoking an interference

[1] Serial No. 3,693, filed January 20, 1960, for "Preparation of Organic Compounds."

[2] No. 2,908,693, issued October 13, 1959, entitled "Production of 2-Methyl-Dihydrotestosterones."

with that patent. Appealed claims 2 and 3 differ only in scope and we shall therefore treat both claims as one for purposes of this opinion.

As required by Rule 204(b), appellant filed certain affidavits which purported to show that he was prima facie entitled to an award of priority of invention relative to the filing date of the Ringold patent. Among other things, these affidavits alleged that the compound produced by the claimed process was known in the art and that its utility was obvious to appellant at the time he invented the process. The examiner, however, took the position that the affidavits were deficient in that they did not clearly show a utility for the compound produced by the claimed process and thus that appellant had not shown that he had made a "useful" invention prior to the filing date of the Ringold patent. This position was summarized by the board as follows:

> It does not appear that the Examiner questions the affidavits filed under the provisions of Rule 204(b) except as to the showing relative to the utility of the compounds produced by the process of claim 3. The issue presented is whether the affidavits are sufficient in the [this?] respect. * * *

The board, placing its reliance on language found in inter partes interference decisions dealing with what constitutes a reduction to practice of an invention, then concluded:

> * * * we cannot agree that a process is *prima facie* useful merely because the product is disclosed in the literature unless the product was known to be useful.

Thus the board would require that before an applicant may have his claims to a new *process* placed in interference to determine the issue of priority of invention pursuant to 35 U.S.C. 135, he must show

that a utility for the *compound* produced by the process was known at the time he invented the process. This requirement cannot be justified in view of 35 U.S.C. 101. As there defined, a process is a separate category of patentable invention. Clearly, a process which operates as disclosed to produce a known product is "useful" within the meaning of section 101. To add to this section the further requirement that such a process is "useful" only when a "use" for a known end product is disclosed seems to us to be an improper arrogation of the authority delegated to Congress by the Constitution. Had such a restriction been intended by Congress, we believe it would have been directly stated either in section 101 or in the definition of a process found in section 100(b). We take the omission of any such requirement to be determinative of the issue here.

We had hoped that our views set forth in *In re Dickinson and Zenitz,* 49 CCPA 951, 299 F. 2d 954, 133 USPQ 39, as to the Commissioner's duties and responsibilities under the statutory provisions and the rules of practice here in issue, would have been considered as determinative of the issues here. While we agree with the board that the *facts* in the *Dickinson and Zenitz* case distinguish it from the *facts* here, we think what was there said is pertinent as to the basic legal right of the appellant to have the issue of priority of invention duly determined as provided in section 135. To the end that there shall be no mistake as to the portions of the *Dickinson and Zenitz* opinion which we think should have been applied in this case, they are quoted as follows (49 CCPA at 957–58):

> There is no question but that under 35 U.S.C. 135, the Commissioner is required to initiate interference proceedings by giving notice to the

parties whenever, *in his opinion,* an application would interfere with any pending application or with any unexpired patent.

Further, under 35 U.S.C. 6, subject to the approval of the Secretary of Commerce, he "may establish regulations, not inconsistent with law, for the conduct of proceedings in the Patent Office." Also, it is equally clear that, unless specifically prohibited by law, the Commissioner may delegate his duties.

On the other hand, in performing his duties, the Commissioner cannot usurp the functions or impinge upon the jurisdiction of the Board of Patent Interferences established by 35 U.S.C. 135.

In applying these principles to the case at bar, it is obvious that the Commissioner could promulgate a rule to cover the factual situation that is presented in this and similar cases. This he did in establishing Rule 204(b). Also, he could delegate to the Primary Examiner and the Assistant Commissioner his responsibilities under Section 135, and they could decide in the first instance whether a prima facie case had been presented by applicant.

* * * * *

The "opinion" of the Commissioner that is required in Section 135 pertains to the factual question of whether the claims of the application would interfere with the claims of the patent, and whether a prima facie case has been alleged. The question of priority is to be determined by the Board of Patent Interferences and such factors, as what is necessary to show reduction to practice in a particular case, come within the exclusive jurisdiction of that board. It should be kept in mind, however, that a patentee ought not to be compelled to go through an interference proceeding without reasonable cause.

> Although Rule 204(b) indicates that the required affidavit must be in the nature of that specified in Rule 131, obviously, any provision of Rule 131 which requires more than the statute contemplates in connection with a Rule 204(b) proceeding would not be applicable, as in the case at bar. * * *

In the *Dickinson and Zenitz* case we held that for purposes of a prima facie showing of actual reduction to practice of a chemical compound, the utility requirement of section 101 was satisfied by alleging merely that "the utility [of the claimed compound] was obvious to us at the time we submitted the compound for testing which was prior to August 16, 1955 [the critical date]." It is our opinion that, if the requirement of a prima facie showing of utility of a claimed compound may be satisfied by the statement that such utility was "obvious" at the time the invention was made, then *a fortiori* the requirement is satisfied where no question is raised as to the operability of the claimed chemical process to produce a known compound.

It seems clear from the present record that the Patent Office refused to accept appellant's affidavits on the philosophical basis that unless a compound is known to be useful, a process for making the compound is not useful under section 101 and hence not patentable. Thus the case of *In re Wilke and Pfohl,* 50 CCPA 964, 314 F. 2d 558, 136 USPQ 435, cited by appellant and argued by both parties, is not directly controlling here since it dealt with the adequacy of the specification with respect to a disclosure of "how to use" under section 112. *Wilke* is of value, however, in that it indicates the recent thinking of this

court with respect to utility issues. In *Wilke,* speaking to the section 112 issue, we said:

> * * * We decline to apply to these process claims the statement in the Bremner case from which the Patent Office has extracted the so-called "rule of Bremner," i.e., that the specification must teach a use for the product of a claimed process. Had this been the intent of Congress, we are certain that it would have been so stated in 35 U.S.C. 112. * * *

The relevance of this statement to the present case seems clear. If, to be patentable, a process must not only produce a product but a product known or proved to be useful, then it follows that an application for a patent on such a process would have to disclose how to use the product. But the holding in *Wilke* is to the contrary. See also *In re Adams et al.,* 50 CCPA 1185, 316 F. 2d 476, 137 USPQ 333.

In the *Bremner* case [*In re Bremner et al.,* 37 CCPA 1032, 182 F. 2d 216, 86 USPQ 74, 75] this court said, "It was never intended that a patent be granted upon a product, or a process producing a product, unless such product be useful." That this statement is correct with respect to *product* claim is beyond doubt. 35 U.S.C. 101. As to whether a specification must show *how to use* the product of a claimed *process,* however, our holding in *Wilke* made it abundantly clear that it is not necessary so to do. In the present case, our holding that where a claimed process produces a known product it is not necessary to show utility for the product eradicates, as to process claims, whatever remained of the so-called "rule of Bremner" subsequent to our decision in *Wilke.* See also *In re Szwarc,* 50 CCPA 1571, 319 F. 2d 277. 138 USPQ 208.

Neither the solicitor nor appellant has cited a case, nor have we found any, which is contrary to our present holding. To be sure, in *Petrocarbon Ltd.* v. *Watson,* 247 F. 2d 800, 114 USPQ 94 (D.C. Cir. 1957), the court relied on the *Bremner* case in affirming a rejection of certain chemical process claims. However, as we pointed out in the *Szwarc* case, *supra,* the decision made no distinction between product and process claims and was based on the insufficiency of the disclosure of how to use the product produced by the claimed process *as required by section 112.* At any rate, for whatever the *Petrocarbon* case may be said to stand, we have already indicated, at some length, our disagreement with it in both the *Szwarc* case and *In re Nelson et al.,* 47 CCPA 1031, 280 F. 2d 172, 126 USPQ 242, and it would serve no useful purpose to labor the point further here.

The law regarding utility has enjoyed an uncommon stability over the years, in contrast to many other areas in the patent law. In the *Nelson* case, *supra,* we considered in some depth the ancient and persistent requirement of utility as a condition for patentability. As indicated by the many authorities there discussed, a process is "useful," as a matter of law, if it operates as disclosed to produce its intended result or perform its intended function and if it is not, in operation or result, detrimental to the public interest.

As long ago as 1817, in *Bedford* v. *Hunt,* 3 Fed. Cas. 37 (No. 1217) (C.C.D. Mass.), Justice Story articulated the basis for this general statement, when he said:

> * * * By useful invention, in the statute, is meant such a one as may be applied to some beneficial use in society, in contradistinction to an invention, which is injurious to the morals,

> the health, or the good order of society. It is not necessary to establish, that the invention is of such general utility, as to supersede all other inventions now in practice to accomplish the same purpose. It is sufficient, that it has no obnoxious or mischievous tendency, that it may be applied to practical uses, and that so far as it is applied, it is salutary. *If its practical utility be very limited, it will follow, that it will be of little or no profit to the inventor; and if it be trifling, it will sink into utter neglect. The law, however, does not look to the degree of utility; it simply requires, that it shall be capable of use, and that the use is such as sound morals and policy do not discountenance or prohibit.* * * * [Emphasis added.]

And again in the same year, in *Lowell* v. *Lewis,* 15 Fed. Cas. 1018 (No. 8568) (C.C.D. Mass.), Justice Story said:

> * * * All that the law requires is, that the invention should not be frivolous or injurious to the well-being, good policy, or sound morals of society. The word "useful," therefore, is incorporated into the act in *contradistinction to mischievous or immoral.* For instance, a new invention to poison people, or to promote debauchery, or to facilitate private assassination, is not a patentable invention. *But if the invention steers wide of these objections, whether it be more or less useful is a circumstance very material to the interests of the patentee but of no importance to the public.* If it be not extensively useful, it will silently sink into contempt and disregard. * * * [Emphasis added.] [3]

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[3] In commenting on this language, one court has said that "A study of the cases reveals that the legal significance of 'useful' in the patent statute differs from the general conversational connotation of the word." *Cusano* v. *Kotler,* 159 F. 2d 159,

This basic rationale has persisted, unchanged, down to the present day, in this court as well as in the District of Columbia Circuit. As recently as 1961, the District Court for the District of Columbia stated, in *Commonwealth Engineering Co.* v. *Ladd,* 199 F. Supp. 51, 131 USPQ 255, 257:

> This Court held in Isenstead v. Watson, 157 F. Supp. 7, 115 USPQ 408, that the term "utility" is a broad term and implies, among other things, capacity to perform the function or attain the result claimed by the applicant in his disclosure. It further held that, in connection with a composition of matter, the test of utility is whether the invention will attain the purpose and will operate as disclosed and claimed by the inventor. Similarly, *in connection with an invention consisting of a process or a method, the term utility must necessarily mean whether the process will operate as claimed and will produce the result intended by the inventor.* [Emphasis added.]

In the present case it is admitted that appellant's claimed process meets these requirements. It operates as claimed and produces the result intended by the inventor. In addition, it has not been shown to be contrary to sound morals and policy. To put it another way, appellant's process *works* and is not alleged to be detrimental to the public interest. Under such circumstances, appellant's affidavits under Rule 204(b) have made a legally sufficient prima facie showing as to his actual reduction to practice of the claimed process prior to the filing date of Ringold.

162, 72 USPQ 62 (3d Cir. 1947). In that case the court held that the creation of a new game conforms to the patent requirement of being useful.

See also *Callison* v. *Dean*, 70 F. 2d 55, 21 USPQ 240 (10th Cir. 1934), which held that a device which may be used for innocent amusement possesses utility.

He is, therefore, entitled under section 135 to a determination as to the issue of priority of invention.

The decision of the board is *reversed.*

Reversed.

WORLEY, Chief Judge, dissenting.

The Patent Office has given Manson an opportunity to show that his product is useful. Although that is his obligation he has been either unable or unwilling to do so. Therefore, the Patent Office quite properly rejected his application and should be affirmed.

I am aware of no authority for the novel proposition that a process which produces a useless product is patentable. Such a premise is wholly contrary to the Constitution and I am satisfied Congress did not intend the statutes enacted thereunder to be so construed.

In *In re Oberweger,* 28 CCPA 749, 115 F. 2d 826, 47 USPQ 455, this court quoted with approval an earlier statement from *In re Perrigo,* 18 CCPA 1323, 48 F. 2d 965, 9 USPQ 154:

> Neither the Patent Office tribunals nor the court may properly grant patents upon a mere possibility that a device might do the things claimed for it and be useful. There must be definiteness. Neither the Constitution nor the statutes contemplate the granting of patents upon theories, nor giving a monopoly upon intellectual speculations embodied in devices incapable of scientific analysis.

In *Libbey Owens* v. *Celanese,* 57 USPQ 258, the Sixth Circuit Court of Appeals held:

> Controlling is the fact that such method claims are limited to the use of plastic compositions, with the identical ingredients and in the proportions of the three product claims, which have been already held to be insufficiently disclosed and inoperative, and the process, therefore, lacks the further requisite of utility.

I appreciate the fact that Manson's product is a known compound which may—or may not—someday prove to be useful. However, for his process to possess the requisite statutory utility, it must presently be more than a mere invitation to others to determine that it is useful.

United States Court of Customs and Patent Appeals

OCTOBER TERM, 1963

June 25, 1964

IN THE MATTER OF THE APPLICATION OF ANDREW JOHN MANSON

Patent Appeal No. 7140

Subject Matter: Preparation of 2-Methyl-17a-Lower-Alkyland-rostan-17b-ol-3-Ones

Serial No. 3,693

Said appeal having heretofore been brought on to be heard before the court and due consideration thereon having been had, it is—

ORDERED that the decision of the Board of Appeals be, and the same is hereby, reversed.

I, GEORGE E. HUTCHINSON, Clerk of the United States Court of Customs and Patent Appeals, do hereby certify that the above judgment and the attached opinion are true and correct copies of the judgment and opinion of said United States Court of Customs and Patent Appeals filed the 25th day of June, A.D. 1964, in the above-entitled appeal, as the same remain upon the files and records of said court.

WITNESS my hand and the seal of this court this 5th day of November, A.D. 1964.

GEORGE E. HUTCHINSON,
Clerk.

U.S. GOVERNMENT PRINTING OFFICE: 1965

INDEX

CITATIONS

IN THE

Supreme Court of the United States

OCTOBER TERM, 1964

No. 932

EDWARD J. BRENNER, Commissioner of Patents,
Petitioner,

v.

ANDREW JOHN MANSON

On Petition for a Writ of Certiorari to the United States Court of Customs and Patent Appeals

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BRIEF FOR THE RESPONDENT IN OPPOSITION

OPINION BELOW

The opinion of the United States Court of Customs and Patent Appeals (Pet. App. 13)* is reported at 333 F. 2d 234, 142 USPQ 35.

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* Pet. App.—Designates the appendix printed in the Petition.

THE JURISDICTIONAL MATTER

The basis for jurisdiction is as alleged in the Petition.

The jurisdiction of this Court to grant a writ of certiorari to the United States Court of Customs and Patent Appeals *upon petition of the Commissioner of Patents* is denied.

STATUTES AND PATENT OFFICE RULES OF PRACTICE INVOLVED

The provisions of Article I, Section 8, clause 8 of the Constitution of the United States, 28 U.S.C. 1256, 35 U.S.C. 101, and 35 U.S.C. 112 are set forth in the petition at page 3.

The following Statutes and Patent Office Rules of Practice which are also involved are set forth in the appendix to this brief:

35 U.S.C. 6	At Resp. App. 21
35 U.S.C. 103	At Resp. App. 21
35 U.S.C. 134	At Resp. App. 21
35 U.S.C. 135	At Resp. App. 21
35 U.S.C. 141	At Resp. App. 22
35 U.S.C. 144	At Resp. App. 22

Rule 204(b)--Prior to January 1, 1965
At Resp. App. 22

Rule 204(b) and (c)—After January 1, 1965
At Resp. App. 23

Rule 131 At Resp. App. 24

THE QUESTIONS PRESENTED

1. Whether this Court has jurisdiction to review, on certiorari, a decision by the United States Court of Customs and Patent Appeals *favorable* to an applicant-appellant in a case arising from the Board of Appeals of the United States Patent Office.

2. Whether, to satisfy the requirements of Patent Office Rule 204(b) (before it was amended) to prove a prima facie case of priority of invention relative to the filing date of a patentee, an applicant for a patent on a new process for making an old compound must establish a utility for such previously known compound preparatory to having an interference declared between his application and the prior patent.

3. Whether a chemical process is a "useful process", within the meaning of 35 U.S.C. 101, if it produces a previously *known* chemical compound which had been described in an earlier scientific journal as a member of a group of compounds of great current scientific interest.

4. Whether, in view of 35 U.S.C. 135, a Primary Examiner of the United States Patent Office has jurisdiction to decide any question in any way determinative of priority of invention as between parties claiming the same patentable subject matter.

STATEMENT OF THE CASE

The decision below determined what an applicant for a patent must establish to satisfy Patent Office Rule 204(b), preliminary to the declaration of an interference[1] between his application and a prior patent.

Respondent's patent application (R[2]-3-9) claims a new process for making an old chemical compound, 2-alpha, 17-alpha-dimethylandrostan-17-beta-ol-3-one.[3]

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[1] An "interference" is a proceeding instituted pursuant to 35 U.S.C. 135 for the purpose of determining the question of priority of invention between two or more parties claiming substantially the same patentable invention.

[2] "R" refers to the transcript of record printed for use by the United States Court of Customs and Patent Appeals.

[3] For simplicity this compound will henceforth in this brief be referred to as the "2-alpha compound".

This 2-alpha compound became known when it was described in a journal article by Ringold et al. published in J. Org. Chem. November, 1956, Vol. 21, pages 1333-1335 (R-75-79). That article also described a process for making the 2-alpha compound and related compounds and stated the compounds were of great scientific interest.

Ringold et al. United States Patent 2 908 693 (R-73) [the patent with which respondent is seeking interference] issued in 1959, claiming a new and different process for making the journal article compounds.

Respondent thereafter timely filed his patent application, claiming the same new process as the Ringold et al. patent and asked the Patent Office to declare an interference with the patent. Respondent also filed concurrently a Rule 204(b) affidavit.[4] No objection was made to the contents of Respondent's patent application, but only to the Rule 204(b) affidavit.

Respondent filed affidavits (R-13, 14, 48, 61 and 62) which cumulatively established that, prior to the December 17, 1956 priority date of the Ringold et al. patent, respondent (a) made the invention described in his patent application; (b) performed all the steps of his claimed process as documented by copies of his notebook records; (c) was an expert research chemist experienced in synthesizing steroid compounds in research projects designed to produce new medicinal agents in the field of endocrinology; (d) had read the Ringold et al. published journal article; and, (e) believed the utility of the claimed process was obvious to him in that it would produce the 2-alpha compound, the utility of which, as a hormone analog described in

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[4] See Resp. App. 22 for the text of this Rule stating what the affidavit is to contain.

the journal article by Ringold et al., was also obvious to him.

The Examiner regarded the Rule 204(b) affidavits as insufficient to establish a prima facie case of invention by Respondent prior to the filing date of the patentee, because the affidavits: (1) failed to disclose any utility for the 2-alpha compound made by the claimed process; and, (2) failed to show the 2-alpha compound was known to have any utility prior to the effective date of the Ringold et al. patent. Because the Primary Examiner refused to declare an interference between Respondent Manson's application and the Ringold et al. patent, Manson's claims were rejected on the Ringold et al. patent. Manson then appealed to the Patent Office Board of Appeals (R-47) [under 35 U.S.C. 134].

The Board of Appeals affirmed the Examiner for three reasons, saying: (1) *In re Dickinson and Zenitz,* 299 F. 2d 954, 49 CCPA 951, 133 USPQ 39, which held an allegation in a Rule 204 (b) affidavit that the particular named utility of the claimed invention was obvious to the inventor, may constitute completion of the prima facie case of priority of invention, did not apply (R-68); (2) the fact the compounds produced by the claimed process may be hormones, and closely related to another hormone shown by the Ringold et al. publication to have utility as a tumor inhibitor, cannot be considered a showing of utility (R-68); and, (3) a process is not prima facie useful merely because the product is disclosed in the literature, unless the *product* was known to be useful (R-69).

Respondent appealed to the United States Court of Customs and Patent Appeals (R-69) [under 35 U.S.C.

141] which reversed the decision of the Board of Appeals, one judge dissenting. The court below held (Pet. App. 13): (1) since Manson's process works and is not alleged to be detrimental to the public interest, it is useful; (2) Rule 204(b) is satisfied by an affidavit showing operability of the claimed process to produce a known product and there is no additional requirement under 35 U.S.C. 101 that a "use" for such known product be disclosed; and, (3) *In re Dickinson and Zenitz,* 299 F. 2d 954, 49 CCPA 951, 133 USPQ 39, which sets forth the Commissioner's duties and responsibilities is determinative of the instant case.

The Commissioner was directed to initiate the interference between the Manson application and the Ringold et al. patent.

A. ARGUMENT—ON JURISDICTION

1. BECAUSE REVIEW IS SOUGHT BY THE COMMISSIONER OF PATENTS, THIS COURT LACKS JURISDICTION

There is a serious jurisdictional question involved, which the Court ought resolve. Respondent's version of that question differs from that of Petitioner.

Respondent agrees with the broad proposition this Court has jurisdiction to review on certiorari a decision by the United States Court of Customs and Patent Appeals in a case on appeal from the Board of Appeals of the United States Patent Office. [The reasoning and background are found in Stern and Gressman "Supreme Court Practice" 3rd ed., 1963, pages 56-60.]

However, Respondent submits this jurisdiction is limited to cases where the review is sought by the patent applicant, and does not extend to cases where the party seeking review is the Commissioner of Patents,

as the instant case. The right of only one of two parties to seek review is not unusual in *ex parte* patent cases.

Patent appeal procedure begins with 35 U.S.C. 134 which provides:

> "An applicant for a patent, any of whose claims has been twice rejected, may appeal from the decision of the primary examiner to the Board of Appeals . . ."

Thereafter, the applicable appeal statute is 35 U.S.C. 141, which provides:

> "An applicant dissatisfied with the decision of the Board of Appeals may appeal to the United States Court of Customs and Patent Appeals . . ."

Thus, statutory authority for appeal is limited to an applicant for patent.

The Congressional intent to limit review of decisions of the Court of Customs and Patent Appeals in *ex parte* patent cases to instances where review is sought by the patent applicant can be seen by comparing the language of the statutes granting jurisdiction to this Court to review cases from various other courts and from the Court of Customs and Patent Appeals and noting the differences in language.

28 U.S.C. 1254 dealing with review of cases from the courts of appeal provides:

> "Cases in the courts of appeals may be reviewed by the Supreme Court by the following methods: (1) By writ of certiorari granted upon a petition of *any party* to any civil or criminal case . . ." (Emphasis ours)

28 U.S.C. 1255 dealing with review of cases in the Court of Claims provides:

> "Cases in the Court of Claims may be reviewed by the Supreme Court by the following methods:
>
> (4) By writ of certiorari granted on petition of the United States *or* the claimant; . . ." (Emphasis ours)

28 U.S.C. 1256 dealing with review of cases in the Court of Customs and Patent Appeals provides:

> "Cases in the Court of Customs and Patent Appeals may be reviewed by the Supreme Court by writ of certiorari."

In the latter statute, it is not spelled out who can petition for the writ, contrary to the preceding instances which specify that *any party* can petition.

This Court had occasion to consider the relationship between the Commissioner of Patents and the penultimate predecessor of the present United States Court of Customs and Patent Appeals in *Butterworth* v. *Hoe,* 112 U.S. 50, 59 and noted

> "If dissatisfied with his [the Commissioner of Patents] decision, the party . . . , may appeal to the Supreme Court of the District of Columbia. Rev. Stat. Sec. 4911. To that appeal the Commissioner is a formal party, ... A certificate of its [the court's] proceedings and decision is to be returned to the Commissioner and entered of record in the Patent Office, and shall govern—so the statute says—the further proceedings in the case, ...
> "It is evident that the appeal thus given to the Supreme Court of the District of Columbia from the decision of the Commissioner, is not the exercise of ordinary jurisdiction at law or in equity on the part of that court, but is one step in the statu-

tory proceeding under the patent laws whereby that tribunal is interposed in aid of the Patent Office, though not subject to it. *Its adjudication, . . . is, . . . conclusive upon the Patent Office itself, for as the statute declares,* Rev. Stat. Sec. 4914, *it 'shall govern the further proceedings in the case.' The Commissioner cannot question it.* He is bound to record and obey it. His failure or refusal to execute it by appropriate action would undoubtedly be corrected and supplied by suitable judicial process. The decree of the court is the final adjudication upon the question of right; everything after that dependent upon it is merely in execution of it; it is no longer matter of discretion, but has become imperative and enforceable. It binds the whole department, the Secretary as well as the Commissioner, . . ." (Emphasis ours.)

Statutory language substantially identical to that above considered is in effect today as 35 U.S.C. 141 and 35 U.S.C. 144. The latter statute states:

"The United States Court of Customs and Patent Appeals, on petition, shall hear and determine such appeal * * * *. Upon its determination the court shall return to the Commissioner a certificate of its proceedings and decision, which shall be entered of record in the Patent Office and govern the further proceedings in the case."

The Commissioner is bound to accept the decision of the Court of Customs and Patent Appeals and has no statutory authority to seek review here.

B. ARGUMENT—ON THE "MERITS"

1. THERE IS NO CONFLICT OF DECISION BECAUSE DIFFERENT STATUTORY PROVISIONS ARE INVOLVED IN THE RESPECTIVE DECISIONS

Petitioner incorrectly asserts (Pet. 5)

> "The decision below, holding that a patent may be obtained on a process for the production of a useless product—a holding which is in direct conflict with the decision of the Court of Appeals for the District of Columbia Circuit in *Petrocarbon Ltd.* v. *Watson,* 247 F. 2d 800, certiorari denied, 355 U.S. 955 . . ."

A different statutory provision is involved in the instant case and in *Petrocarbon Ltd.* v. *Watson,* 247 F. 2d 800, wherefore completely different legal issues were presented in each case. Thus, the decisions being on different points of law, are not in conflict at all.

The *Petrocarbon* opinion stated, 247 F. 2d 800:

> "This is a patent case, in which the Patent Office rejected an application on the ground it did not meet the requirement of 35 U.S.C. 112 (1952) . . .".

The opinion of the Court here below stated (App., p. 17):

> "It seems clear from the present record that the Patent Office refused to accept appellant's affidavits on the philosophical basis that unless a compound is known to be useful, a process for making the compound is not useful under Section 101 and hence not patentable."

In *Petrocarbon Ltd.* v. *Watson,* 247 F. 2d 800, the sole question was whether applicants' patent specification was fatally defective as a matter of law for failure

to meet the requirement of 35 U.S.C. 112 that it contain ". . . a written description of the invention, and of the manner and process of making and using it . . .". The court did not say the invention was not useful, but only held the specification did not explain *how the invention was to be used,* as required by 35 U.S.C. 112.

In the instant Manson case there was no contention applicant's specification (application disclosure) did not meet the requirements of 35 U.S.C. 112. The Statute here involved is 35 U.S.C. 101, which contains the requirement the invention be a "useful process".

A 35 U.S.C. 112 rejection says in effect: Your invention may be otherwise patentable but your specification is defective. A 35 U.S.C. 101 rejection says in effect: Your specification may be fine, but your invention is not patentable because it is not useful.

The very real differences between the "useful" requirement of 35 U.S.C. 101 and the "how to use" requirement of 35 U.S.C. 112 are spelled out at length in *In re Nelson et al.,* 280 F. 2d 172, 47 CCPA 1031, 126 USPQ 242.

Cases involving different statutory provisions present no conflict on the same matter of law for this Court to resolve.

2. THERE IS NO IMPORTANT QUESTION OF LAW IN ISSUE

While Petitioner's second "Question Presented" reading:

> "Whether a process which produces a useless product is patentable" (Pet. 2)

may be an important question of law, it is NOT a question in THIS case. The reasons it is hypothetical, and not a proper question here, are:

(a) Patentability of the Already Patented Process is Not in Issue

The process involved in this case has been determined to be patentable by the Petitioner since the Petitioner issued a patent claiming the process, i.e., Ringold et al. Patent 2 908 693.

All that remains for decision is whether such patentable process was first invented by Ringold et al. or by Respondent.

(b) Respondent's Process Does Not Produce a "Useless" Product

By Petitioner's use of the wording "useless product" in his statement of the Question Presented, he commits the error in logic known as "petitio principii" or "begging the question". Moreover, Petitioner's question is hypothetical because the process here involved does not produce a "useless" product.

The dissenting opinion (Pet. App. 22) made reference to a process which produces a "useless" product, but such reference is factually incorrect. The record shows the 2-alpha compound produced by the claimed process is useful. The record shows the 2-alpha compound has a high anabolic, androgenic ratio and is especially valuable where an anabolic or antiestrogenic effect together with a lesser androgenic effect is desired (R-73), and that researchers considered the compound to be desirable and worthwhile making since it is one of a group of compounds "of great interest due to the discovery that certain members of this series have been found to be massive inhibitors of the development of a transplantable rat mammary tumor" (R-76). Anything people want for a legitimate purpose, including research, is "useful". The case law on this point

is well established (Pet. App. 19, et seq.). The cases cited in the dissent below (Pet. App. 22) are concerned only with "inoperativeness", which is not here an issue.

(c) The Instant Case is Interlocutory in Nature

The instant case is interlocutory in that it did not finally determine Respondents' right to receive a patent.

The effect of the decision of the Court below is that the Commissioner of Patents was directed to institute an interference involving Respondent and a patentee.

The decision below does not hold appellant ought be granted a patent. It does not hold the patentee is not entitled to his patent.

The decision below is an appellate ruling on an interlocutory order in an *ex parte* proceeding of a Federal Agency. Legal rights and relationships to which liabilities or sanctions may accrue have not been established. The case does not warrant review by this Court. *Rochester Telephone Corp.* v. *United States,* 307 U.S. 125, 131; 59 S. Ct. 754; *Hayes* v. *Fischer,* 102 U.S. 121; *American Construction Co.* v. *Jacksonville, T. & K.W.R. Co.,* 148 U.S. 372, 385; 37 L. Ed. 486, 13 S. Ct. 495; *Baltimore Contractors* v. *Bodinger,* 348 U.S. 176, 75 S. Ct. 249.

(d) The Court Would Likely Not Reach the Question Posed by Petitioner

The decision below was not concerned with the question stated by Petitioner, but with a completely different issue in which any utility question was only incidentally involved. As the opening paragraph of the majority opinion states:

> "The single legal issue presented by this appeal is whether an applicant for a process on a new process for making a known compound must establish a utility for such compound, in order to satisfy the requirements of Rule 204(b) *preparatory to having an interference declared* between his application and a prior patent." (Pet. App. 13)

That single issue actually involved a number of subissues, ignored by petitioner, which effectively foreclose consideration of petitioner's proposed question. A short explanation will be helpful.

When respondent, Manson, first filed his Rule 204(b) affidavits, questions arose as to whether there was compliance with the rule. Rule 204(b) then provided

> ". . . when required the applicant shall file an affidavit (of the nature specified in rule 131 setting forth facts which would prima facie entitle him to an award of priority relative to the filing date of the patentee."

The Primary Examiner stated the facts set forth in the affidavit did not make out a *prima facie* case of priority of invention. Later, additional related questions arose because of the intervening decision in *In re Dickinson and Zenitz,* 299 F. 2d 254, 49 CCPA 951, 133 USPQ 39, which held that, where a Rule 204(b) affidavit stated the utility of the invention was obvious, this was sufficient to complete the *prima facie* case, so the interference had to be declared—since otherwise the primary examiner actually would be determining priority, when the governing statute, 35 U.S.C. 135, requires that priority be determined by a Board of Patent Interferences. In a sense there was involved a "jurisdictional dispute" between two entities housed within the Patent Office itself.

Thus, even assuming *arguendo* respondent's invention actually is useless, within the Patent Office only the Board of Patent Interferences has statutory jurisdiction to determine this under the circumstances of this case; a determination which would not occur until the interference had been declared and until after testimony of the parties has been taken. [The instant case has not progressed to that point, and the interference has yet to be declared.]

Since the primary examiner, by statute, could not properly determine this question of utility in the present posture of the case, neither can this Court. The Court's right to decide this particular question can only derive from the primary examiner. In other words, before this Court can reach any utility issue, it must first determine that the court below was wrong in holding the applicable statute, 35 U.S.C. 135, did not allow the Commissioner (acting through his designee, the Examiner) to determine priority in the guise of a determination of what constitutes a *prima facie* case of priority relative to the filing date of the patentee. If that question is decided adverse to Respondent, the Court would then consider whether the Rule 204(b) affidavits filed presented a *prima facie* case of priority, under any possibly applicable interference precedent. If that question also is decided adverse to respondent, only then would the Court reach the question petitioner wants reviewed. The actual questions presented in this case are those formulated by respondents in this brief.

3. RULE 204(b) HAS BEEN AMENDED IN A MANNER WHICH WILL PREVENT THE ISSUE FROM ARISING IN THE FUTURE

The actual issue below primarily involved an interpretation of the requirements of Patent Rule 204(b). On January 1, 1965, Rule 204(b) as it read when this case was before the Patent Office and the court below, ceased to exist. It had been amended in such a way that the actual issue below can never again arise in any future case. See the appendix to this brief, pages 22 and 23, for the complete wording of the rule before and after its amendment. Previously Rule 204(b) contained the now deleted words

> ". . . and, when required, the applicant shall file an affidavit (of the nature specified in rule 131) setting forth facts which would prima facie entitle him to an award of priority relative to the filing date of the patentee."

This language was why the Primary Examiner examined respondent's affidavits to determine whether he thought a prima facie case of priority existed. The amended rule no longer allows the Primary Examiner to determine this. Note that the newly added section, Rule 204(c), last sentence thereof, specifically limits what the Primary Examiner may consider to a mere determination of whether a date prior to the effective filing date of the patentee is alleged. In the future, all aspects of priority will be determined by the Board of Patent Interferences only. Because of the rule change the issue determined by the court below can never again arise, and is moot as a precedent for future cases.

4. THE QUESTIONS IN THIS CASE ARE UNRELATED TO THOSE INVOLVED IN OTHER CASES NOW BEFORE THE COURT

Petitioner says: (Pet. 11)

> "An appropriate opportunity to resolve the question in the larger context of related patent problems is presented by other cases on the Court's calendar or pending on petitions for certiorari. See *Graham* v. *John Deere Co.,* No. 580, certiorari granted, Jan. 18, 1965; *Calmar, Inc.* v. *Cook Chemical Co.,* No. 778, petition pending; *Colgate-Palmolive Co.* v. *Cook Chemical Co.,* No. 810, petition pending; *United States* v. *Bert N. Adams,* No. 906, petition pending."

Respondent disagrees. These are not related cases, save they all involve patents. Each other case is concerned solely with the question of obviousness in view of the prior art, under 35 U.S.C. 103, not here involved.

Thus, in *Graham* v. *John Deere Co.,* No. 580, certiorari granted, the question is the validity of a patent on a clamp for a plow in view of *the prior art;* in *Calmar, Inc.* v. *Cook Chemical Co.,* No. 778, petition pending, the question is whether a patent on a pump spray device was properly held valid over the *prior art,* and infringed; in *United States* v. *Bert N. Adams,* No. 906, petition pending, the question is whether a patent on a battery is valid over the *prior art.*

The above cases all involve questions once termed "invention" over prior art, inventivelevel, or the so-called "standard of patentability", i.e., what are now 35 U.S.C. 103 questions. But the instant case has nothing to do with any 35 U.S.C. 103 question and is not part of any "larger context of related patent problems". It is truly *sui generis.*

5. THE DECISION BELOW WAS CORRECT

The majority of the court below was properly concerned only with the usefulness of the invention claimed, rather than the usefulness of something else not the invention. The invention claimed in Claim 2 of respondent's application is

> "A process for preparing 2 alpha, 17 alpha-dimethylandrostan-17 beta-ol-3-one comprising hydrogenating 2-hydroxymethylene-17 alpha-methylandrostan-17 beta-ol-3-one in the presence of a palladium catalyst." (R-81)

The invention of Claim 2 works to do what it is supposed to do. Whatever works successfully benefits the public. Respondent's claimed process represents an alternative way to make the 2-alpha compound. It takes nothing the public had before, but adds another tool to the public's storehouse of technology.

An analogy will point up the absurd result of petitioner's contention that Manson's new process for producing a known compound is useless. If the invention claimed were a process for printing books, petitioner would say the process was useless and unpatentable unless the particular book printed by the inventor was a "useful" book; merely using the new process to print any known book would not suffice; and, maybe petitioner would even require the inventor of the new printing process to write the book. Application of the principle involved in the decision below to other processes points up its correctness.

CONCLUSION

It is submitted there should be a limited grant of the petition for certiorari solely to the jurisdictional question whether decisions of the Court of Customs and Patent Appeals in patent cases are reviewable on certiorari, which was left open in *Glidden Company* v. *Zdanok,* 370 U.S. 530, 578, n. 49, so this court can determine whether the broad position of petitioner or the narrower one of respondent on this question is correct.

In so far as any part of the petition is concerned with the merits of the decision below, it should be denied for the reasons given.

Respectfully submitted,

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March 1965

APPENDIX TO RESPONDENT'S BRIEF

35 U.S.C. 6, "Duties of Commissioner [of Patents]" provides in pertinent part:

> "The Commissioner, . . . may, subject to the approval of the Secretary of Commerce, establish regulations, not inconsistent with law, for the conduct of proceedings in the Patent Office."

35 U.S.C. 103. "Conditions for patentability; non-obvious subject matter" reads:

> "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

35 U.S.C. 134, "Appeal to the Board of Appeals" reads:

> "An applicant for a patent, any of whose claims has been twice rejected, may appeal from the decision of the primary examiner to the Board of Appeals, having once paid the fee for such appeal."

35 U.S.C. 135, "Interferences" provides in pertinent part:

> "Whenever an application is made for a patent which, in the opinion of the Commissioner, would interfere with . . . any unexpired patent, he shall give notice thereof to the . . . applicant and patentee . . . . The question of priority of invention shall be determined by a board of patent interferences (consisting of three examiners of interferences) whose decision, if adverse to the claim of an applicant, shall constitute the final refusal by the Patent Office of the claims involved, and the Commissioner may issue a patent to the applicant who is adjudged the prior inventor." . . .

35 U.S.C. 141, "Appeal to Court of Customs and Patent Appeals" provides in pertinent part:

> "An applicant dissatisfied with the decision of the Board of Appeals may appeal to the United States Court of Customs and Patent Appeals, . . ." . . .

35 U.S.C. 144, "Decision on Appeal" reads:

> "The United States Court of Customs and Patent Appeals, on petition, shall hear and determine such appeal on the evidence produced before the Patent Office, and the decision shall be confined to the points set forth in the reasons of appeal. Upon its determination the court shall return to the Commissioner a certificate of its proceedings and decision, which shall be entered of record in the Patent Office and govern the further proceedings in the case."

Rule 204(b) of the Rules of Practice of the United States Patent Office Cases, [37 C.F.R. Section 1.204(b)] as it read at the time the instant case arose and until January 1, 1965:

> "204. Interference with a patent; affidavit by junior applicant * * *
>
> "(b) When the filing date or effective filing date of an applicant is subsequent to the filing date of a patentee, the applicant, before an interference will be declared, shall file an affidavit that he made the invention in controversy in this country, before the filing date of the patentee, or that his acts in this country with respect to the invention were sufficient under the law to establish priority of invention relative to the filing date of the patentee; and, when required, the applicant shall file an affidavit (of the nature specified in rule 131) setting forth facts which would prima facie entitle him to an award of priority relative to the filing date of the patentee."

Amended Rule 204(b) and (c). By notice published in 29 F.R. 15 866, 15 867, November 26, 1964, Patent Rule 204 was amended, the amended rules to take effect January 1,

1965 and apply to interferences proposed for declaration after that date. The notice read:

"Section 1.20(b) of Title 37 C.F.R. (Patent Rule 204) is amended and new paragraph (c) is added, as follows:

1.204. Interference with a patent; affidavit by junior party.

(b) When the effective filing date of an applicant is three months or less subsequent to the effective filing date of a patentee, the applicant, before the interference will be declared, shall file an affidavit that he made the invention in controversy in this country before the effective filing date of the patentee, or that his acts in this country with respect to the invention were sufficient to establish priority of invention relative to the effective date of the patentee.

(c) When the effective filing date of an applicant is more than three months subsequent to the effective filing date of the patentee, the applicant, before the interference will be declared, shall file two copies of affidavits by himself and by one or more corroborating witnesses, supported by documentary evidence if avaliable, setting out a factual description of acts and circumstances which would prima facie entitle him to an award of priority relative to the effective filing date of the patentee, and accompanied by an explanation of the basis on which he believes that the facts set forth would overcome the effective filing date of the patentee. Upon a showing of sufficient cause, an affidavit on information and belief as to the expected testimony of a witness whose testimony is necessary to overcome the filing date of the patentee may be accepted in lieu of an affidavit by such witness. If the examiner finds the case to be otherwise in condition for the declaration of an interference he will consider this material only to the extent of determining whether a date prior to the effective filing date of the patentee is alleged, and if so, the interference will be declared."

Rule 131 of the Rules of Practice of the United States Patent Office in Patent Cases [37 C.R.F. Section 1.131] reads:

> 131. Affidavit of prior invention to overcome cited patent or publication. (a) When any claim of an application is rejected on reference to a domestic patent which substantially shows or describes but does not claim the rejected invention, or on reference to a foreign patent or to a printed publication, and the applicant shall make oath to facts showing a completion of the invention in this country before the filing date of the application on which the domestic patent issued, or before the date of the foreign patent, or before the date of the printed publication, then the patent or publication cited shall not bar the grant of a patent to the applicant, unless the date of such patent or printed publication be more than one year prior to the date on which the application was filed in this country.
>
> (b) The showing of facts shall be such, in character and weight, as to establish reduction to practice prior to the effective date of the reference, or conception of the invention prior to the effective date of the reference coupled with due diligence from said date to a subsequent reduction to practice or to the filing of the application. Original exhibits of drawings or records, or photocopies thereof, must accompany and form part of the affidavit or their absence satisfactorily explained."

INDEX

CITATIONS

Cases—Continued

In the Supreme Court of the United States

OCTOBER TERM, 1965

No. 58

EDWARD J. BRENNER, COMMISSIONER OF PATENTS,
PETITIONER

v.

ANDREW JOHN MANSON

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

BRIEF FOR PETITIONER

OPINION BELOW

The opinion of the Court of Customs and Patent Appeals is reported at 333 F. 2d 234 (R. 63).

JURISDICTION

The judgment of the Court of Customs and Patent Appeals was entered on June 25, 1964 (R. 72) and a timely petition for rehearing was denied on November 5, 1964 (R. 73). On February 3, 1965, the Chief Justice extended the time in which to file a petition for a writ of certiorari to and including March 5, 1965. The petition was filed on February 23, 1965, and was granted on April 26, 1965 (R. 75). The

jurisdiction of this Court is invoked under 28 U.S.C. 1256.

QUESTIONS PRESENTED

1. Whether this Court has jurisdiction under 28 U.S.C. 1256 to review patent decisions of the United States Court of Customs and Patent Appeals.

2. Whether a process is "useful" within the meaning of the Patent Act (and hence patentable) merely because it operates to produce a product without any known specific utility.

CONSTITUTIONAL, STATUTORY AND ADMINISTRATIVE PROVISIONS INVOLVED

Article I, Section 8, clause 8, of the Constitution of the United States provides:

> The Congress shall have Power
>
> * * * * *
>
> To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;
>
> * * * * *

28 U.S.C. 1256 provides:

> *Court of Customs and Patent Appeals; certiorari—*
>
> Cases in the Court of Customs and Patent Appeals may be reviewed by the Supreme Court by writ of certiorari.

35 U.S.C. 101 provides:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent

therefor, subject to the conditions and requirements of this title.

35 U.S.C. 112 provides:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

* * * * *

35 U.S.C. 135 provides:

Whenever an application is made for a patent which, in the opinion of the Commissioner, would interfere with any pending application, or with any unexpired patent, he shall give notice thereof to the applicants, or applicant and patentee, as the case may be. The question of priority of invention shall be determined by a board of patent interferences (consisting of three examiners of interferences) whose decision, if adverse to the claim of an applicant, shall constitute the final refusal by the Patent Office of the claims involved, and the Commissioner may issue a patent to the applicant who is adjudged the prior inventor. A final judgment adverse to a patentee from which no appeal or other review has been or can be taken or had shall constitute cancellation of the claims

> involved from the patent, and notice thereof shall be endorsed on copies of the patent thereafter distributed by the Patent Office.
>
> A claim which is the same as, or for the same or substantially the same subject matter as, a claim of an issued patent may not be made in any application unless such a claim is made prior to one year from the date on which the patent was granted.

Patent Office Rule 204(b), 37 CFR 1.204(b), provides:

> When the filing date or effective filing date of an applicant is subsequent to the filing date of a patentee, the applicant, before an interference will be declared, shall file an affidavit that he made the invention in controversy in this country, before the filing date of the patentee, or that his acts in this country with respect to the invention were sufficient under the law to establish priority of invention relative to the filing date of the patentee; and, when required, the applicant shall file an affidavit (of the nature specified in Rule 131) setting forth facts which would prima facie entitle him to an award of priority relative to the filing date of the patentee.

STATEMENT

On January 20, 1960, respondent, pursuant to 35 U.S.C. 135, filed an "interference" application (R. 3–18) with the Patent Office for the purpose of establishing the priority of his discovery over a patent previously issued on October 13, 1959, to Ringold and Rosenkranz (U.S. Pat. No. 2,908,693, hereinafter referred to as the Ringold patent) (R. 57–58). Respond-

ent alleged that he made the invention described in his application prior to December 17, 1956, *i.e.,* three years before the Ringold patent was issued (R. 9).

The Ringold patent and the interference application both described the same new process for the production of a class of organic chemical compounds, technically known as 2-methyl-dihydrotestosterones. These compounds had been previously known; the Ringold patent and respondent's application covered only the process for their production. The Ringold patent disclosed a use for the compounds produced by the new process in the "treatment of those ailments where an anabolic or antiestrogenic effect together with a lesser androgenic effect is desired" (R. 57), and a publication by Ringold and Rosenkranz in a scientific journal prior to their patent application indicated that one such use might be as a tumor inhibitor (R. 59–61). Respondent's application, on the other hand, disclosed no known use for the compounds and disclosed no use for the process other than in the production of the compounds. Respondent, moreover, did not come forward with his application until after Ringold had disclosed the therapeutic utility of the compounds.

The Patent Office Examiner rejected respondent's application on the ground that he had failed "to establish priority of invention *relative to the filing date of the patentee* [Ringold]" because, in his application and affidavits supporting his application, he had failed "to disclose any utility for" the chemical compounds produced by the new process and had failed "to show that said final product was known to have any utility prior to the effective date of the

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[Ringold] reference" (R. 39–40; emphasis in original). The Board of Appeals affirmed these findings that respondent had not sufficiently alleged knowledge of utility prior to Ringold, and held that respondent's interference application had been properly rejected on this basis (R. 49–53). The Court of Customs and Patent Appeals (Chief Judge Worley dissenting) reversed (R. 63–71). In the court's view, "a process which operates as disclosed to produce a known product is 'useful' within the meaning of section 101 [of the Patent Act (35 U.S.C. 101)]" (R. [illegible]–65). The court held that respondent had therefore satisfied the utility requirement upon the discovery of the process alone and was thus entitled to attempt to establish whether his discovery had been prior to Ringold's. Accordingly, it directed the Patent Office to institute an interference proceeding between respondent and Ringold.

SUMMARY OF ARGUMENT

While the question is not free from difficulty, we believe that the Court has jurisdiction over this case under Section 1256 of the Judicial Code (28 U.S.C.). The unlimited language of Section 1256, considered alone, confers jurisdiction. Section 1256 was, however, enacted at a time (1948) when this Court's decision in *Postum Cereal Co.* v. *California Fig Nut Co.,* 272 U.S. 693, constituted a constitutional bar to certiorari jurisdiction over decisions of the Court of Customs and Patent Appeals reviewing determinations of the Patent Office. That constitutional bar was removed in *Glidden* v. *Zdanok,* 370 U.S. 530, and the question now at issue is whether Section 1256, enacted prior to

Glidden, should be read to confer jurisdiction upon the class of cases made constitutionally reviewable by *Glidden.* We believe that Section 1256 should be so read. We are persuaded principally by the unlimited language of the provision and by the anomalies which would result from reading Section 1256 to confer only the jurisdiction existing in 1948. In view of these anomalies and an apparent legislative purpose consistent with conferring full constitutional jurisdiction upon this Court, it seems most appropriate to read Section 1256, as it is written, to confer certiorari jurisdiction over all cases in the Court of Customs and Patent Appeals which can now constitutionally be reviewed, regardless of whether they were deemed reviewable when the Judicial Code was adopted.

On the merits, the question in this case concerns the meaning of the utility requirement for patentability in the Patent Act as it relates to applications for patents on processes to produce chemical compounds. The Court of Customs and Patent Appeals has held that such a process is "useful" within the meaning of the Act (and hence that it is patentable if new and non-obvious) so long as it "operates as discosed to produce a known product." (R. 64–65). In our view, this test does not require a sufficient showing of utility, for it would permit a patent on a process whose sole use was to produce a useless product, thus resulting in no benefit to society in exchange for the patent. Such a result conflicts with the statutory and constitutional requirement that patents only be issued upon inventions which constitute a contribution to the progress of "useful Arts." Indeed, the result below may tend actually to inhibit progress by foreclosing

efforts by persons other than the patentee independently to develop uses for the process or its product.

The purpose of the utility requirement in every patent act has been, we believe, to restrict patents to those inventions which can be exploited through the patent monopoly to the benefit of the public. In return for his invention, the inventor is given an initial period of seventeen years in which his rights of exploitation and commercial development are exclusive. It is important to enforce the utility requirement to insure that patents not be granted upon ideas or techniques which, because they lack present utility, cannot be beneficially exploited under the patent grant. The only function of the patent in such a case would be to foreclose creative research by persons other than the patentee in the area covered by the patent. Since no present beneficial utility was shown for the process here at the time of the alleged invention, respondent's interference application was properly denied by the Patent Office.

ARGUMENT

I

THIS COURT HAS JURISDICTION UNDER 28 U.S.C. 1256 TO REVIEW PATENT DECISIONS OF THE COURT OF CUSTOMS AND PATENT APPEALS

Section 1256 of the Judicial Code (28 U.S.C.) broadly provides:

"Cases in the Court of Customs and Patent Appeals may be reviewed by the Supreme Court by writ of certiorari."

Despite this unqualified language, there is a question whether certiorari jurisdiction does, in fact, exist

in the present case.[1] Indeed, we have in the past urged that such jurisdiction did not exist under Section 1256.[2] This view originated prior to this Court's decision in *Glidden Co.* v. *Zdanok*, 370 U.S. 530, and was, at that time, based principally upon the constitutional obstacle to review posed by *Postum Cereal Co.* v. *California Fig Nut Co.*, 272 U.S. 693.[3] In *Glidden Co.* v. *Zdanok*, however, the Court effectively overruled the *Postum* case, thus eliminating the constitutional barrier. The resulting statutory question of this Court's certiorari jurisdiction over patent cases from the Court of Customs and Patent Appeals

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[1] See, generally, Kurland and Wolfson, *Supreme Court Review of the Court of Customs and Patent Appeals*, 18 Geo. Wash. L. Rev. 192, 198 (1950).

[2] See footnotes 3–6, *infra*.

[3] Our position that jurisdiction did not exist under Section 1256 was apparently first taken in our Brief in Opposition in *Dalton* v. *Marzall*, No. 87, O.T., 1951, certiorari denied, 342 U.S. 818, where we argued that "[p]etitioners' reliance on that section [1256] overlooks the holding of this Court in the *Postum Cereal Company* case * * * that it has no constitutional power to review decisions in summary appeals taken from determinations of the Patent Office in patent and trademark matters * * *" (p. 7). This position was repeated prior to *Glidden* v. *Zdanok* in the following cases: *Thompson* v. *Learned*, No. 496, O.T., 1951, certiorari denied, 342 U.S. 942; *Shackell* v. *Marzall*, No. 763, O.T., 1951, certiorari denied, 343 U.S. 978; *Martin* v. *Marzall*, No. 130, O.T., 1952, certiorari denied, 344 U.S. 824; *Campbell* v. *Commissioner of Patents*, No. 300, O.T., 1954, certiorari denied, 348 U.S. 858; *Ducci* v. *Commissioner of Patents*, No. 603, O.T., 1955, certiorari denied, 350 U.S. 982; *Tatincloux* v. *Commissioner of Patents*, No. 734, O.T., 1955, certiorari denied, 351 U.S. 907; *Rubenfield* v. *Watson*, No. 622, O.T., 1959, certiorari denied, 362 U.S. 903; *Commissariate a L'Energie Atomique* v. *Watson*, No. 826, O.T., 1959, certiorari denied, 362 U.S. 977.

under Section 1256 was expressly left open in *Glidden.* (370 U.S. at 578 n. 49).

While our view as to the non-existence of certiorari jurisdiction was not abandoned immediately after the decision in *Glidden Co.* v. *Zdanok,*[4] we contemporaneously found the issue "very doubtful" in light of the position we took in that case[5] and, more recently, we have urged that the question was a close one, warranting this Court's plenary consideration.[6] We have now undertaken a full re-examination of the question and have concluded, in light of *Glidden* and the unqualified language of Section 1256, that jurisdiction does exist.

1. In *Postum Cereal Co.* v. *California Fig Nut Co.,* 272 U.S. 693, this Court held that decisions of the Court of Appeals for the District of Columbia, on appeal from decisions of the Patent Office relating to patent or trademark applications, were not judicial determinations but "merely an instruction * * * by a court which is made part of the machinery of the Patent Office for administrative purposes." 272 U.S.

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[4] See our Briefs in Opposition in *In the Matter of the Application of Andrew Alford*, No. 416, O.T., 1962; certiorari denied, 371 U.S. 901; *Cauer* v. *The Honorable Justices of the United States Court of Customs and Patent Appeals*, No. 268 Misc., O.T., 1963, certiorari denied, 375 U.S. 808; *Surrey* v. *Ladd*, No. 466, O.T., 1963, certiorari denied, 375 U.S. 930.

[5] Brief for the Respondent in Opposition in *Larsen* v. *Ladd*, No. 671, O.T., 1961, p. 4, certiorari denied, 370 U.S. 936.

[6] Brief for the Respondent in Opposition *In the Matter of the Application of Friedrich Gruschwitz and Albert Fritz*, No. 579, O.T., 1963, certiorari denied, 375 U.S. 967. After finding considerations on both sides, we said that "[w]e do not urge that the question is one which would not warrant examination in an appropriate case" (p. 7).

at 698–699. Such "administrative" decisions did not, in the Court's view, present justiciable cases or controversies constitutionally appropriate for this Court's resolution.

The jurisdiction of the Court of Appeals for the District of Columbia over patent and trademark matters was subsequently transferred to the Court of Customs and Patent Appeals. Act of March 2, 1929, c. 488, Sections 1–4, 45 Stat. 1475. The transfer was not, however, deemed to affect the constitutional question of this Court's jurisdiction over such cases for, in subsequently denying certiorari to the Court of Customs and Patent Appeals in *Pacific Northwest Canning Co.* v. *Skookum Packers' Assn.*, 283 U.S. 858 (a trademark case), and in *McBride* v. *Teeple*, 311 U.S. 649 (a patent case), the Court specifically noted that the denial was "for want of jurisdiction," citing *Postum*.[7] Petitions in subsequent patent cases from the Court of Customs and Patent Appeals were merely denied, without more.

In 1961, *Postum* was effectively overruled in *Glidden Co.* v. *Zdanok*, 370 U.S. 530, 574–579, 605 n. 11. The Court held "the patent and trademark jurisdiction now exercised by the Court of Customs and Patent Appeals [to be] fully within the category of cases and controversies." (370 U.S. at 578).[8]

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[7] In denying certiorari in *Pacific* the Court also cited the section of the Judicial Code which indicated an absence of a statutory basis for certiorari review of patent and trademark decisions of the Court of Customs and Patent Appeals. In *McBride* the Court did not allude to the statute, but it did cite *Pacific*.

[8] While the language appears in the plurality opinion of only three Justices, the concurring opinion of Mr. Justice Clark,

Thus, the constitutional obstacle to review by this Court was removed. The subsisting question is a statutory one: Whether Congress should be deemed to have vested jurisdiction over such cases in this Court through the prior enactment of Section 1256 of the Judicial Code.

2. The statutory history of Section 1256 contains no absolute answer to the problem. Prior to 1948, the Court's jurisdiction to review decisions of the Court of Customs and Patent Appeals was specifically limited to customs cases. The statute conferring review was Section 308 of the Judicial Code [9] which had two parts: One empowered the Court of Customs and Patent Appeals to determine appeals from the Customs Court and the second authorized this Court to

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joined by the Chief Justice (370 U.S. at 585–589), plainly supports the same conclusion.

Postum was not technically "overruled," since the plurality opinion found that its decision had probably rested upon a statutory scheme no longer in existence (370 U.S. at 577):

> At the time when *Postum* was decided, the proceeding in equity against the Patent Office [now a "civil action" in the District Court for the District of Columbia, see 35 U.S.C. 145] was cumulative rather than alternative with the review by appeal, and it seems likely that it was this feature of the statute which caused the Court to characterize the judgment of the Court of Appeals as "a mere administrative decision." 272 U.S. at 698. Thereafter Congress made the remedies alternative, Act of March 2, 1927, c. 273, § 111, 44 Stat. 1335, 1336, and it was this amended jurisdiction that it later transferred to the Court of Customs and Patent Appeals, renaming the court in the process. Act of March 2, 1929, c. 488, 45 Stat. 1475.

[9] Section 308 was originally enacted as Section 195 of the Judicial Code in 1911, 36 Stat. 1145. It was amended by the Act of August 22, 1914, 38 Stat. 703, and by Section 647 of the Tariff Act of 1930, 46 Stat. 590, 762, 28 U.S.C. (1946 ed.) 308.

review such decisions. The jurisdiction of the Court of Customs and Patent Appeals over appeals from decisions of the Patent Office was covered by a separate statute which, consistently with the constitutional ~~provisions~~ doctrine of the *Postum* case, made no reference to Supreme Court review.

The 1948 codification of the Judicial Code, of which Section 1256 was a part, collected the provisions defining the jurisdiction of the several federal courts in chapters dealing separately with each court. The provisions relating to the jurisdiction of the Court of Customs and Patent Appeals were placed in Chapter 93. Section 1541, based upon the first part of old Section 308, conferred jurisdiction over decisions of the Customs Court; Section 1542 continued the jurisdiction previously conferred over patent and trademark decisions of the Patent Office. Chapter 81 of the new Code dealt with this Court's jurisdiction. The Reviser's Note to Section 1256, treating jurisdiction over the Court of Customs and Patent Appeals, indicated only the second portion of old Section 308 as a predecessor and did not suggest that any substantive change was intended. Nevertheless, Section 1256 unqualifiedly provided review through certiorari in "[c]ases in the Court of Customs and Patent Appeals," whereas Section 308 had explicitly conferred jurisdiction only in customs cases. So long as the *Postum* decision remained a constitutional bar to certiorari jurisdiction over all but customs cases in the Court of Customs and Patent Appeals, the Reviser's Note accurately reflected the fact that the enactment of the new provision had no practical effect upon this Court's jurisdiction. In light of the removal of this

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bar by *Glidden Co.* v. *Zdanok,* however, the question is whether a broad delegation of jurisdiction is to be attributed to this previously enacted and literally unrestricted provision.

While the question thus raised is not free from difficulty, we believe that Section 1256 may permissibly be read as conferring jurisdiction in this Court in patent cases from the Court of Customs and Patent Appeals and that this reading best accords with the legislative purpose underlying the 1948 codification. We are persuaded to reach this conclusion after re-examination in light of *Glidden Co.* v. *Zdanok,* not only by the unqualified language of the statute, but by the anomalies which would be perpetuated by a narrow reading of Section 1256—anomalies held constitutionally necessary in *Postum* but whose constitutional basis has now been removed.

To begin with, we note that the issue of patentability presently reaches this Court, whatever the scope of Section 1256, in infringment proceedings originally arising in the district courts or the Court of Claims. There seems no sound reason to attribute a legislative purpose to deny this Court's jurisdiction to resolve the same issue when presented by the more immediate route of direct review by the Court of Customs and Patent Appeals of the Patent Office decision concerning patentability, now that such review has become constitutionally permissible.

Sound reasons of patent policy also point toward attributing a legislative purpose to confer this direct jurisdiction over the issue of patentability, in the absence of constitutional obstacles: Serious harm may be avoided if this Court has jurisdiction to bar the

initial grant of an undeserved monopoly in a field of scientific or industrial experimentation where the existence of an invalid patent would inevitably constitute a substantial discouragement to use of the "patented" process or article.

Finally, we note that Congress has made decisions of the Patent Office directly reviewable, albeit by different procedures, in either the District Court for the District of Columbia or the Court of Customs and Patent Appeals. (See 35 U.S.C. 145; 28 U.S.C. 1542; *Glidden Co.* v. *Zdanok,* 370 U.S. 530, 576–577.) Decisions respecting patentability by the Court of Appeals for the District of Columbia, on appeal from decisions of the district court, are clearly reviewable by this Court on certiorari. (See *Hoover Co.* v. *Coe,* 325 U.S. 79; *Special Equipment Co.* v. *Coe,* 324 U.S. 370.) It seems most consistent with the legislative purpose underlying the Judicial Code to conclude that similar decisions of the Court of Customs and Patent Appeals should also be reviewable by this Court, not only to prevent the incongruity of having this Court's jurisdiction determined by the patent applicant's choice of the court in which initially to seek review of the Patent Office, but also to provide a method of eliminating conflict between two co-equal federal courts—the Court of Appeals and the Court of Customs and Patent Appeals—thus vindicating one of the principal legislative purposes for the establishment of the certiorari jurisdiction.[9a] This very case illustrates such a conflict: The decision below is the culmination of a

[9a] Since the option to choose the forum lies with the applicant, he would be free to choose the most favorable forum in cases—like the present one—of conflict between the Court of Customs

series of decisions of the Court of Customs and Patent Appeals inconsistent with the decision of the court of appeals in *Petrocarbon, Ltd.* v. *Watson*, 247 F. 2d 800, certiorari denied, 355 U.S. 955.[10]

In these circumstances, we submit that the unqualified grant of certiorari jurisdiction in Section 1256 should be read, as written, to confer not merely the customs jurisdiction existing in 1948, but general jurisdiction over all cases in the Court of Customs and Patent Appeals which constitute judicial business within Article III.[11] Any other interpretation would attribute a legislative purpose, seemingly inconsistent with the broad purposes of the 1948 revision, to continue anomalous restrictions upon this Court's power beyond the time when they were constitutionally required. We note in this connection that the result we urge is in accord with the unlimited grant, in other sections of Chapter 81 of the Judicial Code, of the full constitutional jurisdiction over cases in the courts of appeals (Section 1254) and the Court of Claims (Section 1255). It is, moreover, the only interpretation which gives significance to the unlimited language of the jurisdictional provision in the 1948 codification as compared with the limited prior statute. Had the codification not foreseen the potential future expansion of this Court's jurisdiction to accord with the expan-

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and Patent Appeals and the court of appeals. If the forum chosen is the Court of Customs and Patent Appeals, no direct review of its decision would be possible unless Section 1256 is read to cover this case.

[10] See pp. 25–27, *infra*, and footnote 24.

[11] For example, Section 1256 would seem clearly applicable to provide a basis for review of any new Article III business assigned by Congress to the Court of Customs and Patent Appeals after the 1948 codification.

sion of the Article III jurisdiction of the Court of Customs and Patent Appeals, no purpose will have been served by thus codifying a general provision covering all "cases" to replace a limited provision relating only to customs matters.[12]

II

THE COURT OF CUSTOMS AND PATENT APPEALS INCORRECTLY HELD THAT A PROCESS IS USEFUL WITHIN THE MEANING OF THE PATENT ACT MERELY BECAUSE IT OPERATES TO PRODUCE A KNOWN BUT USELESS PRODUCT

On the merits, the question in this case concerns the meaning of the utility requirement for patentability in the Patent Act. Specifically, it calls for decision on the showing of utility which must be made to

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[12] Respondent shares the conclusion that some certiorari jurisdiction exists to review patent decisions of the Court of Customs and Patent Appeals but urges that the jurisdiction extends only to petitions filed by patent applicants and not to petitions on behalf of the Commissioner of Patents (Respondent's Brief in Opposition, pp. 6–9). This assertion is bottomed principally on the fact that the dissatisfied patent applicant alone may seek initial judicial review of adverse administrative action. Respondent would interpret Section 1256 as placing the same limitation upon access to this Court.

Obviously the Patent Office may not contest the propriety of its own judgment by seeking review in the Court of Customs and Patent Appeals. That fact, however, surely does not preclude the Patent Office from seeking review in this Court of an adverse judicial decision rendered in review of its order, if certiorari jurisdiction, as we submit, otherwise exists. See, *e.g.*, *Consolidated Foods Corp.*, 380 U.S. 592; *Securities and Exchange Commission* v. *Chenery Corp.* 332 U.S. 194; *National Labor Relations Board* v. *Hearst Publications, Inc.*, 322 U.S. 111. *Butterworth* v. *Hoe*, 112 U.S. 50, 59–60, upon which respondent relies, was decided at a time when the Constitution was deemed to forbid all direct review in this Court of Patent Office decisions; it therefore cannot be read to say that only the dissatisfied applicant, and not the Commissioner, may seek review.

support an application for a patent on a new process to produce a product whose existence has previously been known and whose use is neither shown nor obvious.[13] In obtaining a patent upon the process involved in this case to produce such a known organic compound, Ringold and Rosenkranz disclosed a potential therapeutic use for the compound as an inhibitor of the growth of tumors in animal organisms. Respondent seeks a determination that his discovery of the process was prior to Ringold's—and hence that he, rather than Ringold, should be deemed entitled to the process patent. It is common ground that, to prevail, respondent must show that he arrived at a patentable invention prior to Ringold. Respondent, however, has failed to allege that any use was known for the compound prior to Ringold's disclosure of such a use and has failed to allege any known use for the process other than in the production of that compound.

In these circumstances, the Court of Customs and Patent Appeals has held that respondent will have

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[13] As mentioned previously, *supra*, pp. 15–16, a conflict exists on this question between decisions of the court below culminating in the present case and the decision of the Court of Appeals for the District of Columbia Circuit in *Petrocarbon, Ltd.* v. *Watson*, 247 F. 2d 800, certiorari denied, 355 U.S. 955. For a discussion of the relevant lower court decisions see pp. 25–27, *infra* and footnote 24. The question has never been resolved by this Court.

For discussion of the general problem involved in this case see Note, *Utility as a Factor in Chemical Patentability*, ~~105~~ 104 U. of Pa. L.R. 1037; Note, *Utility in Intermediate Chemical Compounds*, 8 U.C.L.A. L.R. 989; Cohen and Schwartz, *Do Chemical Intermediates Have Patentable Utility?*, 29 G. Wash. L.R. 87; Boyle and Parker, *Patents for New Chemical Compounds*, 27 J.P.O.S. 831; Levy, *Utility—The Inverted Criterion*, 30 J.P.O.S. 592; Comment, *Utility Requirement in the Patent Law*, 53 Georgetown L.J. 154.

made a sufficient showing of utility prior to Ringold if he can show that his process worked before Ringold's. In the court's view, "a process which operates as disclosed to produce a known product is 'useful' within the meaning of section 101 [of the Patent Act (35 U.S.C. 101)]." Thus the court holds that a process which "works" is conclusively useful, without more.

We disagree. While it is, in our view, admittedly difficult to set out a comprehensive test describing the *extent* of utility which must be shown to support a patentable invention of a process in all cases, we submit that it is clear beyond doubt that *some* showing of present beneficial utility for the results of process must be made. Such a showing is not made by demonstrating merely that the process works to produce some product, if the product will, for all that appears, remain totally useless. Since respondent here made no allegations that a beneficial use for his process or its ~~producer~~ product was known prior to Ringold's disclosures, he did not show that he arrived at a patentable invention before Ringold and his interference application was properly denied by the Patent Office.

A. A PATENTABLE PROCESS MUST BE USEFUL

If one proposition can be said to be settled in the patent law it is that a patentable invention must be useful. This requirement originated in the Constitution itself, which permits Congress "To Promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." [14] There is reason to believe that the patent power was

[14] U.S. Constitution, Art. I, § 8.

originally deemed to flow exclusively from this authority to ~~promote~~ promote the *"useful* Arts," while the advancement of "Science" was the province of copyright law, thus making the utility requirement an expressed constitutional prerequisite.[15]

All federal legislation exercising the patent power has expressly incorporated a requirement of utility as a condition of a patentable invention. The earliest patent law, enacted by the first Congress in 1790, was entitled simply "An Act to Promote the Progress of useful Arts" (1 Stat. 109),[16] as were the two major

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[15] See H. Rep. No. 1923, 82d Cong. 2d Sess., p. 4 (1952); S. Rep. No. 1979, 82d Cong., 2d Sess., p. 3 (1952):

> This provision was unanimously adopted by the Constitutional Convention following suggestions for Federal jurisdiction over both patents and copyrights which had been made in the Convention by James Madison of Virginia and Charles Pinckney of South Carolina. Each proposed separate provisions relating to patents and to copyrights which were merged by the Drafting Committee of the Convention into the general statement we now have, which was adopted without any dissenting voice.
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> The background, the balanced construction, and the usage current then and later, indicate that the constitutional provision is really two provisions merged into one. The purpose of the first provision is to promote the progress of science by securing for limited times to authors the exclusive rights to their writings, the word "science" in this connection having the meaning of knowledge in general, which is one of its meanings today. The other provision is that Congress has the power to promote the progress of useful arts by securing for limited times to inventors the exclusive right to their discoveries. The first patent law and all patent laws up to a much later period were entitled "Acts to promote the progress of useful arts."

[16] Act of April 10, 1790, ch. 7, 1 Stat. 109. Utility as a condition of patentability was similarly underscored by the Continental Congress:

> The Committee of the Week Mr. Pierse Long. Mr. Joseph Gardner and Mr. Samuel Holten beg leave to report, that they

patent acts enacted thereafter (1 Stat. 318; 5 Stat. 117). The 1790 Act granted patent monopolies for such arts, manufactures, engines, machines, or devices as were "sufficiently useful and important" (1 Stat. 110). The patentee was required to describe the invention with sufficient particularity to enable one skilled in the art "to make, construct, or use the same, to the end that the public may have the full benefit, thereof, after the expiration of the patent term."[17] Three years later, with the passage of the second patent act, Congress provided for the issuance of a patent in favor of any citizen inventing "any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement" thereof,[18] upon the condition that he "shall deliver a written description of his invention, and of the manner of using, or process of compounding the same * * *."[19] Succeeding Congresses enacted a considerable amount of legislation relating to the patent system,[20] but "novelty" and "utility" have remained as minimal standards.

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have attentively perused the Petition of Michael Byrne relative to his new invented Instrument for solving problems and fixing Latitudes; but until the said Mr. Byrne give some proof of the utility of such Instrument and that the invention merits the notice of Congress, they recommend that his application lay on the Table.

Journals of the Continental Congress, Vol. XXVIII, p. 30 (February 1, 1785).

[17] 1 Stat. 109, 110.

[18] Act of February 21, 1793, ch. 11, 1 Stat. 318.

[19] 1 Stat. 318, 322.

[20] Principal among the intervening acts were those of 1936 [Act of July 4, 1836, ch. 357, 5 Stat. 117] and 1870 [Act of July 8, 1870, ch. 230, 16 Stat. 198]. The former, undoubtedly a product of the dissatisfaction stemming from the indiscriminate grant of patents following the conversion, by the Patent Act of 1793, of the patent

The present relevant provision, Section 101 of the 1952 Act, (35 U.S.C. 101), entitled "Inventions patentable," provides that "Whoever invents or discovers any *new and useful* process, machine, manufacture, or composition of matter, or any *new and useful* improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title" (emphasis added). The second part of the utility requirement, that the patentee describe his invention in such a way "as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same," is now embodied in Section 112 (35 U.S.C. 112). Section 101 of the 1952 Act also made explicit the previous understanding that a useful "process" might be found to be within the category of patentable inventions.[21]

This Court has always emphasized the requirement of utility as an important condition on the patent grant, not only in general but with specific application to so-called "process" patents. Thus "one great object" of the patent statutes was, "by holding out a reasonable reward to inventors, and giving them an exclusive right to their inventions for a limited period," not merely to reward inventors but "to stimulate the efforts of genius; the main object was 'to promote the progress of science and useful arts.'"

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issuance function into a ministerial act, created the organizational structure of our patent system as we know it today. The 1870 Act, passed as part of the program to revise and consolidate all existing laws, thereafter became Section 4886 of the Revised Statutes of 1874.

[21] As the Committee Reports explain, "[t]he word 'process' has been used to avoid the necessity of explanation that the

Pennock v. *Dialogue,* 2 Pet. 1. Thirty years later, in *Kendall* v. *Winsor,* 21 How. 322, 327–328, the Court made it explicit that "the limited and temporary monopoly granted to inventors was never designed for their exclusive profit or advantage; the benefit to the public or community at large was another and doubtless the primary object in granting and securing that monopoly." And in *Seymour* v. *Osborne,* 11 Wall. 516, 533–534, it was observed:

> Letters patent are not to be regarded as monopolies, created by the executive authority at the expense and to the prejudice of all the community except the persons therein named as patentees, but as public franchises granted to the inventors of new and useful improvements for the purpose of securing to them, as such inventors, for the limited term therein mentioned, the exclusive right and liberty to make and use and vend to others to be used their own inventions, as tending to promote the progess of science and the useful arts, and as matter of compensation to the inventors for their labor, toil, and expense in making the inventions, and reducing the same to practice for the public benefit, as contemplated by the Constitution and sanctioned by the laws of Congress.

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word 'art' as [formerly] used in this place means 'process or method,' and that it does not mean the same thing as the word 'art' in other places," such as the Constitution, where it is used in its broadest sense. H. Rep. No. 1923, 82d Cong., 2d Sess., p. 6 (1952); S. Rep. 1979, 82d Cong., 2d Sess., p. 5 (1952). See also Reviser's Note, 35 U.S.C. 101.

As defined in 35 U.S.C. 100, "the term 'process' means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material."

It is thus abundantly clear, that "[t]he design of the patent laws is to reward those who make some substantial discovery or invention, which *adds to our knowledge and makes a step in advance in the useful arts", Atlantic Works* v. *Brady,* 107 U.S. 192, 200, and patentable utility thus requires ultimate "practical utility." *Smith* v. *Nichols,* 21 Wall. 112, 118 (emphasis added). Patents are not merely "certificates of merit"; the patented invention must also constitute "an innovation for which society is truly indebted to the efforts of the patentee." *Sinclair Co.* v. *Interchemical Corp.,* 325 U.S. 327, 330. In this Court's last decision on a question of patentability, it was again stressed that "The function of a patent is to add to the sum of useful knowledge." *Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Co.,* 340 U.S. 147, 152.

The same general rule of utility undeniably applies to a "process" patent. On the first occasion on which this Court was called upon to scrutinize a claim for such a patent, it stated: "Whoever discovers that a certain *useful* result will be produced, in any art, machine, manufacture, or composition of matter, by the use of certain means, is entitled to a patent for it * * *. And it makes no difference, in this respect, whether the effect is produced by chemical agency or combination." *O'Reilly* v. *Morse,* 15 How. 61, 118 (emphasis added). And in *Cochrane* v. *Deener,* 94 U.S. 780, involving the validity of a patent covering a process for the manufacture of flour, it was observed (*id.* at 787–788) (emphasis added):

> That a process may be patentable, irrespective of the particular form of the instrumen-

> talities used, cannot be disputed. * * * A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing. If new and *useful,* it is just as patentable as is a piece of machinery. In the language of the patent law, it is an art.

While the requirements of utility for process patents is thus old and indisputable, it is only recently that attempts have been made to give content to the rule in specific situations. Prior to 1950, rejections of chemical process patents for lack of disclosure of utility seem to have been exclusively on the ground that the process did not work; it was apparently assumed by the Patent Office, without demonstration, that chemical compounds were necessarily useful, at least in the preparation of other compounds, and that specific inquiry beyond the success of the process was therefore unnecessary to satisfy the statutory standard of utility. See *Ex parte Watt,* 63 U.S.P.Q. 163 (Pat. Off. Bd. App. 1942); Comment, *Utility Requirement in the Patent Law,* 53 Georgetown L. Rev. 154, 183. In 1950, however, the Patent Office, perhaps in response to the proliferation of new chemical compounds of no known utility, rejected a patent on a process for producing a chemical for lack of a disclosure that the products of the process had any utility. The Court of Customs and Patent Appeals affirmed. *In re Bremner,* 182 F. 2d 216. Relying on the Constitutional provision, the predecessors to Sections 101 and 112 of the Act,[22] and several of

[22] Rev. Stat. 4886, 4888.

its prior decisions holding that specifications must disclose utility, the court held that "[i]t was never intended that a patent be granted upon a product, or a process producing a product, unless such product be useful." 182 F. 2d at 217. Seven years later, this decision was followed by the Court of Appeals for the District of Columbia Circuit in *Petrocarbon, Ltd.* v. *Watson,* 247 F. 2d 800, where, in affirming the Patent Office's rejection of product and process claims for a new polymer film, the court held the specification "defective as a matter of law" for failure to "explain how the film is to be used." 247 F. 2d at 801.[23] This Court denied certiorari.

In the years following *Petrocarbon,* while the Patent Office has adhered to the standards of *Bremner,* the Court of Customs and Patent Appeals has, in a series of decisions culminating in the decision below here,[24] reached the contrary rule, *i.e.,* that a process is "useful" within the meaning of the Act merely because it works, regardless of the utility of the end products. It is to the correctness of this rule that we now turn.

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[23] See also *Libbey Owens* v. *Celamese,* 135 F. 2d 138, 146 (C.A. 6), certiorari denied. 320 U.S. 744.

[24] Three years after the *Petrocarbon* decision, in *Application of Nelson,* 280 F. 2d 172, the Court of Customs and Patent Appeals by a 3 to 2 vote seemed to adopt a more permissive attitude toward the requirement of utility, although it did not abandon the requirement except as it might have been thought to presuppose immediate practical utility vis-a-vis the general public as distinguished from scientific users. The court in *Nelson* first held that a new chemical product need not be useful to the general public to be patentable under 35 U.S.C. 101, and that it need not be "good for" anything "other than experimentation and the making of other compounds in the

B. THE UTILITY REQUIREMENT MEANS THAT A PROCESS IS NOT USEFUL (AND HENCE NOT PATENTABLE) MERELY BECAUSE IT "WORKS"; A PRESENT CAPABILITY OF BENEFICIAL UTILITY [redacted] MUST BE SHOWN

The Court of Customs and Patent Appeals has held that "a process which operates as disclosed to

important field of research." 280 F. 2d at 180–181. Second, the court held that the requirement of 35 U.S.C. 112, that the specification disclose such information as to enable a person skilled in the art "to use" the invention, did not mean that the specification had to show what could be done with the new chemical product over and above enabling researchers to use the products to make other chemical products. 280 F. 2d at 182. The new chemicals involved in *Nelson* apparently fell in the pharmaceutical field, and the Patent Office had held that if it were disclosed that they, or other products that might be made from them, possessed therapeutic activity, then the requirement of utility would have been met. While not overruling *Bremner*, the court interpreted it as requiring nothing more than was present in *Nelson*, 280 F. 2d at 183–185. As to *Petrocarbon*, the court expressly disagreed with the decision there reached. 280 F. 2d at 186.

Product claims alone were at issue in *Nelson*. In *Application of Wilke*, 314 F. 2d 558 (1963), decided three years after *Nelson*, the claims related both to new chemical products and the process by which they were made. The court upheld the Patent Office's rejection of the product claims on the ground that the specification failed to disclose the use of some of the products even under the liberal standards of *Nelson*. But, as to the process claims, it reversed the Patent Office's rejection and held that for process claims to be patentable it need only be demonstrated how to carry out the process so as to make the products. Even if the resulting products have no usefulness under the standards of *Nelson*, the process by which they are made might, under the court's holding, be patentable. *Bremner* was expressly overruled as applied to process claims. 314 F. 2d at 565–566. Subsequently, the court approvingly embraced the *Wilke* distinction between product and process patents in *Application of Adams*, 316 F. 2d 476 and *Application of Szwarc*, 319 F. 2d 277. It is interesting to note that *Szwarc* involved a second application covering the precise process and product

produce a known product is 'useful' " within the meaning of the Patent Act. We submit that this definition places too low a standard of utility upon process patents: It is inconsistent with a meaningful statutory requirement of utility and it would permit the granting of patents without a reason to believe, as required by the Act and the Constitution, that the monopoly thus conferred would, indeed, promote the progress of the "useful arts." Not only would progress not be served thereby but, as we shall show, such patents on presently useless processes might well have the opposite effect of stifling progress by unjustifiably precluding large areas of potential scientific research and deterring the innovative process by which useful results might be found. We suggest instead that the language of the Patent Act and its purpose to promote the useful arts are met only by a requirement of utility which demands a showing, as a prerequisite to a patent, that a process be useful in the sense of being presently capable of exploitation for society's

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claims which were at issue in *Petrocarbon*. After rejecting the contention that collateral estoppel precluded consideration of both claims—it recognized that it barred consideration of the product claim—the court reaffirmed its holding in *Wilke* (319 F. 2d at 286) that:

> a specification which teaches those skilled in the art how to use the process, *i.e.*, by disclosing the manipulative steps of the process, the required operating conditions and the starting materials so that the process may be used by a person skilled in the art, meets the requirements of 35 U.S.C. 112. It is not necessary to specify the intended uses for the product produced therein.

Finally, the decision below in this case made it clear beyond doubt that, while the court might still insist upon a showing of utility in product patents, a process patent, in its view, contains sufficient utility if the process works to produce any product, regardless of the utility of the product.

benefit. Absent Ringold's subsequent disclosures, respondent's process clearly did not meet that test.

It is true that, as a matter of language alone, the definition adopted below is not implausible. A process which "works" to produce a product may be said to be "useful" as compared with a process which does not work, just as an engine which works is useful as compared to one which is inoperative. One might thus abstractly examine the usefulness of a process by inquiring whether it produces a product, without inquiry as to the use to which that product can be put. While this approach, adopted by the Court below, may be defended as verbally consistent with the statute (although hardly the most natural reading of it), it is wholly inconsistent with the purpose of the Patent Act and the Constitution to promote the "useful Arts," for it does not test utility in terms of useful results.

This is most easily seen by noticing that as the Court below recognized, a patent on a *product*, as distinguished from the process which produces the product, may be issued only if the product is disclosed to have some utility; otherwise the statutory and constitutional standard of utility is not met.[25] A *process* to produce the product is one step farther removed from utility than the product itself. Where a process has utility only to produce a product, and where the product has insufficient utility to warrant a patent, it

[25] See R. 67, where the court, after quoting the statement in *In re Bremner*, *supra*, that "[i]t was never intended that a patent be granted upon a product, or a process producing a product, unless such product be useful," states "[t]hat this statement is correct with respect to *product* claims is beyond doubt. 35 U.S.C. 101" (emphasis in original).

would make no sense to conclude that the *process* shows utility while the *product* does not. The analogy to an engine which "works" is imperfect, for while the end product of an engine—motion—has obvious uses, the same cannot be said (as the Patent Office has recognized in recent years) for the end products of all processes producing new or known materials. Such materials may have no obvious utility and the statute and Constitution clearly require that a patent not be given without, as the *quid pro quo*, some showing of how the invention may benefit society.

We therefore submit that it is a sound general rule that a process is patentable only upon a demonstration that its results are capable of being beneficially exploited (see Stringham, *Outline of Patent Law*, pp. 132, 136–137, 245). The wisdom of this general rule in terms of the purposes of the Patent Act as well as its expressed requirements is illustrated by the potential harmful economic consequences of the rule adopted below in the field of science involved here: the production of therapeutic drugs. Product patents on "drugs" of no known utility are properly denied for, to the extent that drug manufacturers can blanket the field of potential therapeutic agents with such patents before any utility is found for the chemicals involved, they increase barriers to entry into a defined area of experimentation with such chemicals and thereby create the danger of harmfully discouraging competition and progress.[26] Experimentation to find uses for the product by persons other than the in-

[26] See Edwards, *Big Business and the Policy of Competition* at 90; Note, *Utility in Intermediate Cehmical Compounds*, 8 U.C.L.A. L.R. 989, 993; Stedman, *The U.S. Patent System and Its Current Problems*, 42 Tex. L.R. 451, 453–454.

ventor would, at the very least, to some extent be discouraged by a patent on a product of no known present use, for the discoverer of a use could not freely exploit his discovery.

The same dangers are present in the case of process patent which produce products of no known present utility. Where the new process is the only practical way to produce the product, the rule adopted might well close the door to experimentation or innovation by persons other than the patentee who would otherwise seek uses for the end product.[27] Unless the patentee himself undertakes to find a use for the product produced by his process, significant discovery of such a use may be lost or long postponed. The grant of a patent without the discovery of a use may, moreover, withdraw the incentive of the patentee to find such a use since, under the rule below, he can foreclose his competitors by merely discovering the process. Finally, the rule below may harmfully operate, as it did in this case, to prefer an inventor who finds no use, and who does not even disclose his invention, over one who, shortly afterwards, independently arrives at both the new process *and* a use for the product produced and seeks a patent after full disclosure to exploit his invention.

Thus the rule adopted in this case by the Court of Customs and Patent Appeals—that no use whatsover need be shown to support a process patent other than

[27] Parenthetically, it should be noted that it is no answer to a claim of patent infringement to assert non-use on the part of the patentee. A patentee is under "no obligation either to use [his patent] or to grant its use to others." *Hartford-Empire Co.* v. *United States*, 323 U.S. 386, 432; *Special Equipment Co.* v. *Coe*, 324 U.S. 370.

the demonstration that the process itself actually succeeds in producing a product—is erroneous as not sufficiently requiring a demonstration of utility as a prerequisite to the grant of a patent monopoly. While "pure" scientific research might speculatively, in some cases, be stimulated by the disclosure of a new and presently useless process which would accompany the grant of a patent on such a process, the contrary dangers of inhibiting progress and competition through useless patents, as well as the express statutory requirement of utility, fully justify the Patent Office in refusing such patents. The purpose of the utility requirement in every patent act has been, we believe, to restrict patents to those inventions which can be beneficially exploited through the patent monopoly. In return for his invention, the inventor is given an initial period of seventeen years in which his rights of exploitation and commercial development are exclusive. The distribution of the invention to the public's benefit is thus encouraged—the patent and the monopoly it confers being given in exchange for the present distribution of the progressive benefits of the invention.

Patents upon ideas or techniques which are not sufficiently developed to produce a useful product capable of present exploitation through the patent monopoly, however, provide no basis for supplying any practical need. They function principally to foreclose research and innovation by others in the area covered by the patent. As in the present case, such a patent could well pre-empt a patent grant to the first inventor—here Ringold—who arrives at a process which he

can beneficially exploit, and the patent would thereby discourage the search for and the development of such beneficial uses. We submit that it is important to prevent the patent system from thus stifling scientific development, innovation and competition. This end is accomplished, and the requisite encouragement to useful invention is afforded, through strict enforcement of the requirement that an invention be shown capable of present beneficial use in order to merit a patent.

This is not to say that patents may not be granted upon inventions whose only use is scientific or experimental. To take an extreme example, suppose that a scientist were, today, to invent a machine whose sole function was to produce small amounts of living protoplasm from inert matter. Even if we suppose that the inventor can show no known practical use for the protoplasm produced, it would not follow that he would not therefore be entitled to a patent on his invention based upon its demonstrable experimental utility. Such a machine would be immediately capable of exploitation under a patent by sales or licenses to scientists working on biological research.[28] We recognize, therefore, that the requirement of Section 112 of the Act (35 U.S.C. 112) that the applicant disclose "the manner and process of making and using" the invention "as to enable any person skilled in the art to which it pertains * * * to make and use the same" might be held satisfied by a showing of use in the sense of a known specific scientific application

[28] See Boyle and Parker, *Patents for New Chemical Compounds*, 27 J.P.O.S. 831, 836–837; Deller, *Social and Economic Impact of Patents*, 46 J.P.O.S. 424, 443–445; Levy, *Utility—The Inverted Criterion*, 30 J.P.O.S. 592, 595–596.

of the patent as a research device presently capable of beneficial exploitation."[29]

It is clear beyond doubt that no such showing that the patent might be used for a beneficial purpose was made in this case, where the respondent made no attempt to show any known beneficial use for his process or the end product thereof prior to Ringold's disclosures several years after respondent's alleged invention. Respondent rested on the allegation that the process "worked," and this was insufficient. The decision of the Patent Office to deny respondent's interference application was therefore correct, and the judgment of the Court of Customs and Patent Appeals reversing that decision was erroneous.

CONCLUSION

The judgment of the Court of Customs and Patent Appeals should be reversed.

Respectfully submitted.

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SEPTEMBER 1965.

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[29] Cf. *Application of Citron*, 251 F. 2d 619 (C.C.P.A.) (patent on a process for inducing cancer in animals).

U.S. GOVERNMENT PRINTING OFFICE: 1965

IN THE

Supreme Court of the United States

OCTOBER TERM, 1965

No. 58

EDWARD J. BRENNER, Commissioner of Patents,
Petitioner,

v.

ANDREW JOHN MANSON

On Writ of Certiorari to the United States Court of Customs and Patent Appeals

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BRIEF FOR THE RESPONDENT

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BRIEF FOR THE RESPONDENT

OPINION BELOW

The opinion of the United States Court of Customs and Patent Appeals (R-63) is reported at 333 F. 2d 234, 142 USPQ 35.

JURISDICTION

If this Court has jurisdiction, it is under 28 U.S.C. 1256 as alleged in the Petitioner's Brief. (Pet. Br., pp. 1-2.) However, the jurisdiction of this Court to

review a patent decision of the United States Court of Customs and Patent Appeals *upon petition of the Commissioner of Patents* is an issue in this case.

CONSTITUTIONAL, STATUTORY AND PATENT OFFICE RULES OF PRACTICE PROVISIONS INVOLVED

The applicable provisions are set forth, either in Petitioner's Brief (Pet. Br.) or in the appendix to this brief (Resp. Br.), as follows:

Article I, Section 8, clause 8 of the Constitution of the United States	Pet. Br. p. 2
28 U.S.C. 1254	Resp. Br. p. 61
28 U.S.C. 1255	Resp. Br. p. 61
28 U.S.C. 1256	Resp. Br. p. 61
28 U.S.C. 1257	Resp. Br. p. 61
28 U.S.C. 2601	Resp. Br. p. 62
35 U.S.C. 101	Pet. Br. p. 2
35 U.S.C. 112	Pet. Br. p. 3
35 U.S.C. 134	Resp. Br. p. 63
35 U.S.C. 135	Pet. Br. p. 3
35 U.S.C. 141	Resp. Br. p. 63
35 U.S.C. 144	Resp. Br. p. 63
Rule 131	Resp. Br. p. 64
Rule 204(b), 37 CFR 1.204(b)- [as it read prior to January 1, 1965]	Pet. Br. p. 4
Amended Rule 204(b) and (c), 37 CFR 1.204(b) and (c) [after January 1, 1965]	Resp. Br. pp. 63-64

THE QUESTIONS PRESENTED

1. Whether this Court lacks jurisdiction, on certiorari sought by the Commissioner of Patents, to review a decision by the United States Court of Customs and Patent Appeals *favorable* to an applicant-appellant in a case arising from the Board of Appeals of the United States Patent Office?

2. Whether, to entitle an applicant for a patent to be placed in interference with a patentee, the requisite *prima facie* case of priority of invention of the claimed patented process has been established under Patent Office Rule 204(b), where the applicant avers he successfully carried out said process for making an old compound before the filing date of the patentee, without regard for the utility of such old compound which had previously been made by a different process?

3. Whether a chemical process is a "useful process," within the meaning of 35 U.S.C. 101, where it produces a *previously* known chemical compound which had been described in an earlier scientific journal article as a member of a group of compounds of great current scientific interest being tested as tumor inhibitors?

4. Whether, in view of 35 U.S.C. 135, a Primary Examiner of the United States Patent Office lacks jurisdiction to decide any question *determinative* of priority of invention as between different parties claiming the same patentable subject matter?

STATEMENT OF THE CASE

Respondent disagrees in various respects with the factual statement of the case as set forth in Petitioner's Brief, and therefore presents what he considers a correct version.

(a) Introduction

All controversy in this case arises in the context of what an applicant for a patent must establish to satisfy Patent Office Rule 204(b), preliminary to the declaration of an interference between his patent application and a prior patent of another.

This case arises from respondent Manson's attempt to contest by an interference proceeding in the Patent Office, priority of inventing the subject matter defined by two claims of his patent application Serial 3 693 (R-3-7, 62) copied from Ringold et al. U.S. Patent 2 908 693 (R-57). The declaration of such an interference would result in a determination by the Patent Office board of patent interferences as to whether Manson or the patentee, Ringold et al., actually was the first inventor of the involved subject matter. Should Manson win the interference, the particular patent claims involved would be automatically cancelled from the Ringold et al. patent (by operation of law under 35 U.S.C. 135) and Manson may then obtain a patent thereon. Should Manson lose, the claims will stand in the Ringold et al. patent.

Holding that Manson had not fully complied with its Rule 204(b), which required the filing of an affidavit stating facts sufficient to establish a prima facie case of priority of invention relative to the filing date of the patentee, the Patent Office refused to declare the requested interference and rejected the claims of the Manson application as fully met by the Ringold et al. patent. However, the Court of Customs and Patent Appeals, ruling that Manson had complied with all preliminaries properly required by law, reversed the Patent Office decision. This means that

if the decision below is permitted to stand, the Commissioner of Patents must institute the interference between Manson's patent application and the Ringold et al. patent and the board of patent interferences determine who first invented the process.

(b) The Involved Invention

The invention defined by the patent and the application claims here involved is a *process.*

The chemistry thereof is not material for purposes of this case. The Court may regard the invention simply as: a process for preparing an old substance by reacting two known materials in the presence of a certain catalyst.

The invention here is the *"second"* chemical process discovered for making the substance, 2-alpha, 17-alpha-dimethylandrostan-17-beta-ol-3-one. For simplicity this substance will henceforth in this brief be referred to as the "2-alpha compound." The 2-alpha compound became publicly known to the scientific community when it was described in a journal article published in November of 1956 (R-59-61). That journal[1] gave full details of the *first* process devised [not here involved] for making the "2-alpha compound" and related compounds. It also described what was being done with the compounds, saying:

> "This communication is concerned with the synthesis of a number of 2-methyl and 2,2-dimethyl substituted testosterone and dihydrotestosterone derivatives, compounds of great interest due to the

[1] The authors of the journal article are Ringold et al., a fact which is immaterial for all purposes of this case, as explained *infra,* p. 53.

discovery that certain members of this series have been found to be massive inhibitors of the development of transplantable rat mammary tumor." (R-59)

* * *

"While anti-tumor screening of the above described 2-methyl hormones is still in progress, Ia and IIa have already been shown to be very effective tumor inhibitors." (R-61)

After the journal article was published, Ringold et al. filed a patent application[2] in Mexico on a completely different *second* process for making the same old 2-alpha compound. Within a year thereafter Ringold et al. filed a corresponding U.S. application which issued as U.S. Patent 2 908 693 on 1959 October 13 (R-57). The patent and the Manson application are concerned *only* with said *second* process for making the same old journal article compounds, including the 2-alpha compound; neither claims the *first* process previously disclosed in the earlier journal article.

(c) Manson's Activities in the Patent Office

Manson timely filed his patent application Serial 3 693 (R-3) on 1960 January 20, claiming the same new process as claimed by the Ringold et al. patent. Manson also filed concurrently a Rule 204(b) affidavit (R-9) averring he invented the new process prior to the effective filing date of the Ringold et al. patent and asked the Patent Office to declare an interference with the patent.

No objection was made by the Patent Office Primary Examiner to the contents or disclosure of Manson's

[2] On 1956 December 17.

patent application, but only to the sufficiency of the Rule 204(b) affidavit.

Manson filed additional Rule 204(b) affidavits (R-9, 10, 33, 46, and 47) which, cumulatively, averred that, prior to the 1956 December 17 effective filing date of the Ringold et al. patent, Manson: (a) made the invention described in his patent application; (b) performed all the steps of his claimed process and obtained the 2-alpha compound, had such 2-alpha compound analyzed to establish its identity (all as documented by copies of his laboratory notebook records [R-14-18]); (c) was an expert research chemist experienced in synthesizing steroid compounds in research projects designed to produce new medicinal agents in the field of endocrinology; (d) had read the published journal article; and, (e) averred the utility of the claimed process was obvious to him in that it would produce the 2-alpha compound, the utility of which was also obvious to him, as a hormone analog described in the journal article.

The Examiner regarded the Rule 204(b) affidavits as insufficient to establish a *prima facie* case of invention by Manson prior to the filing date of the patentee, because they: (1) failed to disclose any utility for the 2-alpha compound made by the claimed process; and (2) failed to show the 2-alpha compound was known to have any utility prior to the effective date of the Ringold et al. patent (R-19, 38, 43, 48). Due to the Primary Examiner's refusal to declare an interference between Manson's application and the Ringold et al. patent, Manson's claims were rejected on the Ringold et al. patent. Manson then appealed to the Patent Office Board of Appeals (R-32) under 35 U.S.C. 134.

The Board of Appeals affirmed the Examiner (R-49) for three reasons, saying: (1) the then recently decided case of *In re Dickinson and Zenitz* (CCPA, 1962), 299 F. 2d 954, 133 USPQ 39, which held an allegation in a Rule 204(b) affidavit that the particular named utility of the claimed invention was "obvious" to the inventor, constituted completion of the *prima facie* case for priority of invention, did not apply; (2) the fact the compounds produced by the claimed process may be hormones, and closely related to another hormone shown by the journal article to have utility as a tumor inhibitor, cannot be considered a showing of utility; and, (3) a process is not *prima facie* useful merely because the product made by such process is disclosed in the literature, unless the product was known to be "useful".

(d) The Decision Below

Manson appealed to the United States Court of Customs and Patent Appeals (R-54) under 35 U.S.C. 141, which court reversed the decision of the Board of Appeals, the Chief Judge dissenting. The Court below held (R-63): (1) since Manson's process works and is not alleged to be detrimental to the public interest, it is useful; (2) Rule 204(b) is satisfied by an affidavit showing operability of the claimed process to produce a known product, and, there is no additional requirement under 35 U.S.C. 101 that any "use" for such known product be disclosed; and, (3) *In re Dickinson and Zenitz* (CCPA, 1962), 299 F. 2d 954, 133 USPQ 39, which sets forth the Commissioner's duties and responsibilities, is determinative of many of the issues of the instant case; that case is pertinent as to the basic legal right of Manson to have the issue of priority of invention duly determined by the Board

of Patent Interferences as provided in 35 U.S.C. 135, and not by anyone else within the Patent Office; that case is also authority for the proposition the requirement of a *prima facie* showing of utility under 35 U.S.C. 101 may be satisfied by the statement such utility of the known compound was "obvious" at the time the invention was made.

The result of the decision of the Court below is to direct the Commissioner to declare an interference between the Manson application and the Ringold et al. patent.

SUMMARY OF ARGUMENT

(A) Summary of Argument on Jurisdiction

The jurisdiction of this Court to review patent decisions of the Court below, in a case there on appeal from the Board of Appeals of the United States Patent Office, is limited to cases where the review is sought by the patent applicant and, does not extend to cases such as the present where the party seeking review is the Commissioner of Patents.

The legislative history of 28 U.S.C. 1256 bears this out. As originally proposed that section read:

> "Cases in the Court of Customs and Patent Appeals may be reviewed by the Supreme Court by certiorari granted *on petition of any party* after final judgment." (Emphasis ours)

As promulgated (1948) that section reads:

> "Cases in the Court of Customs and Patent Appeals may be reviewed by the Supreme Court by writ of certiorari."

The omission of the words "on petition of any party" was deliberate, as is clearly apparent by

reference to the legislative history of companion sections. "Any party" does not have the right to seek review. When this section is interpreted in a manner compatible with other related statutes, it is clear the Commissioner of Patents is the party who does not have the right to seek review here.

It is not anomalous that only one party should have the right to seek review of a decision in a patent case from the Patent Office. Review procedure of such cases begins with 35 U.S.C. 141 which grants only the patent applicant, not the Commissioner, the authority initially to appeal an adverse decision of the Patent Office Board of Appeals. After the United States Court of Customs and Patent Appeals renders its decision, 35 U.S.C. 144 forecloses the Commissioner from then asking this Court to review that decision. It provides for a certificate of the decision of the Court below to be returned to the Commissioner, which decision shall "govern the further proceedings in the case."

Since the Commissioner of Patents, who is governed by the decision of the Court below, he may not seek any review which could reverse that decision, and 28 U.S.C. 1256 applies only to a patent applicant party.

(B) Summary of Argument on the Merits

The basic and only proper question in this case is whether there was compliance with Rule 204(b), which is concerned only with *prima facie* proof of priority of invention. Contrary to Petitioner's statement of the issues, because the process on which Manson seeks a patent has already been patented in the Ringold et al. patent, no question of its patentability can possibly

be involved. Because no question of the "utility" disclosure necessary to *support* Manson's patent application was ever raised by the Primary Examiner (R-39), this can not give rise to any issue in the case either.

Initially, this Court ought decide who, within the Patent Office, could lawfully adjudge the legal sufficiency of Manson's Rule 204(b) affidavits to establish the requisite priority of invention since, if the wrong body did so, Manson's affidavits can not thereby be held legally insufficient. The applicable statute, 35 U.S.C. 135, provides

> ". . . the question of priority of invention shall be determined by a board of patent interferences (consisting of three examiners of interferences) . . .".

The Primary Examiner and the Board of Appeals, who adjudged Manson's affidavits and found them insufficient to establish priority of invention under Rule 204(b), legally had no right so to do. In effect this illegality was admitted by Petitioner when the Patent Office recently amended Rule 204 so that, today, a Primary Examiner considers the affidavits submitted only to the extent of determining whether a date prior to the filing date of the patentee is alleged, and if so, he declares the interference and turns the entire file over to the interference division which then makes the legal determination of whether the affidavits establish a *prima facie* case of priority of invention.

Moreover, Manson actually did comply with all the requirements of Rule 204(b). He *prima facie* established priority of invention by the criterion this Court

set forth in *Corona Cord* v. *Dovan* (1928), 276 U.S. 358, 383:

> "A process is reduced to practice when it is successfully performed."

Manson showed he had completed his invention (reduced it to practice) prior to the Ringold et al. filing date, by establishing he had successfully performed the claimed process to make the 2-alpha compound it is supposed to make. This alone was sufficient to comply fully with the requirements of Rule 204(b).

Manson does not claim to have invented the 2-alpha compound, but only a second process for making it. Whether the 2-alpha compound had a known utility is immaterial to the process invention itself. The various statutory types of invention must not be confused. This Court has long distinguished between a process and a product made therefrom, and considered them independent of each other. It is not necessary in order to prove completion of a "process" invention, also to prove completion of a "composition of matter" (product) invention. Here the process invention was completed when it was successfully performed and the compound made thereby was identified as the 2-alpha compound. These acts by Manson also established the process was useful since it worked to produce the desired product (no matter why that product might have been desired). The Court below properly held Manson could and did establish a *prima facie* case of completion of the act of inventing his process without regard to whether the 2-alpha compound produced had a known utility.

Actually, Manson's claimed process does make a compound with a known utility. The 2-alpha com-

pound clearly would be held to be useful under 35 U.S.C. 101 by the Court below. The particular "use" in question is that made known to the scientific community in the journal article, i.e., that the 2-alpha compound is a member of a group of steroid and hormone analog compounds of great interest due to the discovery that certain members of the series have been found to be massive inhibitors of the development of transplantable rat mammary tumor, and antitumor screening of various of the compounds is still in progress, including the 2-alpha compound. This type of utility is sufficient to comply with 35 U.S.C. 101 under a viable precedent, *In re Nelson et al.* (CCPA, 1960), 280 F. 2d 172, 126 USPQ 242.

Manson's process is clearly "useful" as that term is defined in patent law, where it is a term of art, differing from the general conversational connotation of the word. Anything which is not frivolous or worthless or injurious to the well being and morality of the public, and which works is "useful." Manson's process invention, which resulted in a second or alternative way to make the 2-alpha compound, is a contribution to scientists working in this area. Furthermore until comparatively recently the Patent Office itself considered that all chemical compounds were inherently useful, since they can always be used to prepare other compounds. Thus the recent decisions of the Court below do not change the law, but only return it to that applied for so many years successfully to promote the progress of science and the useful arts in this country.

Petitioner's Brief confused the Ringold et al. journal article with the Ringold et al. patent, and also failed to recognize that Ringold et al. made two separate

process inventions; one being the first process of the journal article, and the second being the alternative process of the patent. Manson only seeks to contest priority of the latter alternative process invention. Manson need not show that he made this patented alternative process invention prior to the time Ringold et al. made the first process invention.

Affirmance of the decision below will best serve the objectives for which the patent system was established by promoting earlier disclosure and discouraging secrecy. Inventors will not publish details of their discoveries if doing so will jeopardize their property rights. If a chemist not only has to invent a process for making a new compound, but then must also invent a use for that new compound, it will be much later, if ever, that the process details are made public.

ARGUMENT

(A) ARGUMENT ON JURISDICTION

I. This Court Has Jurisdiction Under 28 U.S.C. 1256 to Review Patent Decisions of the Court of Customs and Patent Appeals Except Where, as Here, Review Is Sought by the Commissioner of Patents

In *Glidden Company* v. *Zdanok,* 370 U.S. 530, 578, footnote 49, 8 L. ed. 2d 671, 704, this Court left open the question of its jurisdiction to review certain decisions of the Court of Customs and Patent Appeals, saying:

> "We intimate no opinion whether 28 USC Sec. 1256 was intended by Congress to make patent and trademark cases reviewable by certiorari in this Court. See Kurland and Wolfson, Supreme Court Review of the Court of Customs and Patent Appeals, 18 GWL Rev. 192, 194-198 (1950)."

Respondent, Manson, believes, as does Petitioner, this Court today has jurisdiction to review on cer-

tiorari a decision by the United States Court of Customs and Patent Appeals in a case there on appeal from the Board of Appeals of the United States Patent Office.[3]

However, Respondent only partially agrees with Petitioner. Contrary to Petitioner's position, Respondent submits this jurisdiction is limited to cases where the review is sought by the patent applicant, and does not extend to cases where the party seeking review is the Commissioner of Patents, as in the instant case. Respondent submits this is the Congressional intent as shown by consideration of the legislative history.

Respondent will not here repeat the portions of Petitioner's Brief, with which it agrees and endorses, i.e., that part which reviews factually the history of this Court in considering whether it has jurisdiction to review decisions of the Court of Customs and Patent Appeals and details factually the various statutory changes which have occurred since this Court last considered the question. Respondent will deal only with those areas where it disagrees with Petitioner.

II. The Congressional Intent Was to Not Allow Review Under 28 U.S.C. 1256 "On Petition of Any Party"

The intent of Congress, to limit review by this Court of decisions of the Court of Customs and Patent Appeals in *ex parte* patent cases solely to instances

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[3] Respondent's reasons, and an exposition of the background of the jurisdictional problem, are detailed in R. J. Gilbert "The Constitutionality of Supreme Court Review of Patent and Trademark Decisions of the Court of Customs and Patent Appeals," 48 T.M.R. 8-17 (1958); Stern and Gressman "Supreme Court Practice," 3rd ed., 1963, pages 56-60; and, especially J. P. McDonnell "Certiorari to and the Constitutional Status of the Court of Customs and Patent Appeals," 45 J.P.O.S. 704-715 (1963).

where review is sought by the patent applicant, can be seen by comparing the language of the companion statutes granting jurisdiction to this Court to review cases from various other courts and from the Court of Customs and Patent Appeals, and noting the differences in language stating who can ask this Court for review.

28 U.S.C. 1254, dealing with review of cases from the courts of appeal of the circuits, provides:

> "Cases in the courts of appeals may be reviewed by the Supreme Court by the following methods: (1) By writ of certiorari granted upon a petition *of any party* to any civil or criminal case . . ." (Emphasis ours)

28 U.S.C. 1255, dealing with review of cases in the Court of Claims, provides:

> "Cases in the Court of Claims may be reviewed by the Supreme Court by the following methods: (1) By writ of certiorari granted upon petition *of the United States or the claimant;* . . ." (Emphasis ours)

28 U.S.C. 1256, dealing with review of cases in the Court of Customs and Patent Appeals, with which we are concerned, provides:

> "Cases in the Court of Customs and Patent Appeals may be reviewed by the Supreme Court by writ of certiorari."

The latter statute does not spell out who can petition for the writ, contrary to the preceding companion statutes which specify that *any party* can petition.

This difference in language is deliberate, as clearly shown by the legislative history of this section. The words "on petition of any party" *were present in the*

preliminary drafts of 28 U.S.C. 1256 prepared as part of the codification of the Judicial Code (which occurred in 1948), but were subsequently deleted.

A study of the legislative history shows that in the first four drafts in 1945 and 1946, the then proposed section 1256 read:[4]

> "Cases in the Court of Customs and Patent Appeals may be reviewed by the Supreme Court by certiorari granted on petition *of any party* after final judgment." (Emphasis ours)

However, in all subsequent drafts and documents, beginning with HR 7124 on July 24, 1946, the language of section 1256 read as it now does, i.e., the "on petition of any party" language no longer appeared.

Undoubtedly the deletion of the "on petition of any party" provision occurred as a conscious result of

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[4] The legislative history may be conveniently found in the Supreme Court library in a three-volume set, entitled "Legislative History, Title 28, U.S. Code," made up of pamphlets and booklets bound together.

The above-quoted language containing the words "on petition of any party" was present at page 230 of the Committee Print printed in 1945 for the use of the Committee on Revision of the Laws, House of Representatives, entitled "Revision of Federal Judicial Code"—Preliminary Draft—with Reviser's notes. The identical above-quoted language was still present at page 69 of a pamphlet "U.S. Code, Revision of Title 28, Judiciary and Judicial Procedures, applicable to the Supreme Court of the United States, 1945" which was prepared at the direction of the Committee on Revision of the Laws of the House of Representatives especially for the Judicial Conference Committee on Revision of the Judicial Code, appointed by the Chief Justice of the United States. The above-quoted language was still present at page 236 of a printed pamphlet entitled "U.S. Code, Revision of Title 28, Judiciary and Judicial Procedure, Fourth Draft, meeting April 1-3, 1946, Washington, D. C.

action taken at the April 1-3, 1946 meeting (referred to in footnote 4). The meeting was of an Advisory Committee made up of various leaders of the Judiciary, of the Bar, of the Judicial Conference, and of the Supreme Court.[5]

The significance of the deliberate omission of the "on petition of any party" language from 28 U.S.C. 1256 becomes even more apparent from the parallel legislative history of companion section 1255 dealing with review of cases in the Court of Claims. Prior to the aforementioned meeting of April 1-3, 1946, this section read that such cases may be reviewed:

> "(1) By writ of certiorari granted on petition of any party."

After that meeting, this section read, as it now does, that such cases may be reviewed:

> "(1) By writ of certiorari granted on petition of the United States or the claimant."

This language change indicates a definite concern over who can seek review in the Supreme Court and emphasizes the omission of "on petition of any party" from Section 1256 was truly a deliberate act and not a mere inadvertence.

Another companion section, 28 U.S.C. 1257, dealing with how cases from state courts may be reviewed by the Supreme Court, also does not specify who can properly ask for review. While we find no cases in point under this statute, in cases under predecessor

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[5] Respondent's attorneys were recently informed by Dr. Zinn, the then counsel for the Committee on Revision of the Laws of the House of Representatives, that the Advisory Committee purposely never published any minutes or otherwise explained its actions.

statutes to section 1257 this Court has held that "any" party does not necessarily have the right to seek review here. For example, in *Morgenthau* v. *Stephans* (1935), 294 U.S. 720, 55 S. Ct. 542, which involved a situation where the judgment sought to be reviewed was joint, and there was no summons and severance of record, a party was not allowed to ask for review. This is another indication failure to spell out who can ask for review in the jurisdictional statute means not all possible parties can seek review.

An argument might be made that failure of the statute to spell out who can ask for review means no party can. This would be specious reasoning, since the statute would then have no effect when it was obviously intended by Congress to have some effect.

While it is clear from the legislative history some party was granted the right to petition for review, what is not so clear is whether the patent applicant *and* the Commissioner of Patents each was granted the right to ask for such review. Respondent bottoms his contention that the right to petition for review is his alone, on the peculiar facts of life in patent law and practice. In proceedings on patent applications, the right of only one of two parties to obtain review is not unusual, so it is not anomalous that only one of the two parties to the case below could now have the right to seek review by this Court of an adverse decision. In fact the patent statutes necessitate that result.

Patent appeal procedure begins with 35 U.S.C. 134 which provides:

> "An applicant for a patent, any of whose claims has been twice rejected, may appeal from the decision of the primary examiner to the Board of Appeals . . ."

Thereafter, the next here applicable statute is 35 U.S.C. 141 which provides:

> "An applicant dissatisfied with the decision of the Board of Appeals may appeal to the United States Court of Customs and Patent Appeals . . ."

Thus, statutory authority to appeal is limited to an *applicant* for patent. The Commissioner cannot so do.

Petitioner argued (Pet. Br., p. 17):

> "Obviously the Patent Office may not contest the propriety of its own judgment by seeking review in the Court of Customs and Patent Appeals. That fact, however, surely does not preclude the Patent Office from seeking review in this Court of an adverse judicial decision rendered in review of its order, if certiorari jurisdiction, as we submit, otherwise exists. See, e.g., *Consolidated Foods Corp.,* 380 U.S. 592; *Securities and Exchange Commission* v. *Chenery Corp.,* 332 U.S. 194; *National Labor Relations Board* v. *Hearst Publications, Inc.,* 322 U.S. 111."

The Petitioner's argument is not applicable here. The specific cases cited by Petitioner indicate only that various administrative agencies have the right to seek review here of an adverse judicial decision reversing their order. In the specific cases the agencies were the Federal Trade Commission, the Securities and Exchange Commission and the National Labor Relations Board. Note in those cases the agencies were seeking review from decisions of a *Court of Appeals,* as to whose decisions 28 U.S.C. 1254 specifically grants "any party" the right to petition for review. Further, in those cases the Board or Commission seeking review was the exact entity which rendered the initial decision appealed to a Court of Appeals. That is not the situation here.

What Petitioner fails to recognize is that "the Commissioner of Patents" and "the Patent Office" are not synonymous. Within the Patent Office, the particular tribunal which rendered the decision appealed to the Court below, is the Board of Appeals. The members of the Board of Appeals are the Commissioner, the assistant commissioners and the examiners-in-chief, all of whom are appointed by the President (35 U.S.C. 3 and 7). The Board of Appeals, by statute, hears appeals in panels of at least three members. While the Commissioner of Patents is *a* member of the Board of Appeals he is not *the* Board of Appeals. Thus the Petitioner is inaccurate in arguing that the reason the Commissioner cannot appeal to the Court of Customs and Patent Appeals is because the Patent Office would thereby be contesting the propriety of its own judgment. The reason is: the statute, 35 U.S.C. 141 precludes it.

Furthermore, 28 U.S.C. 1256 ought to be interpreted in a manner compatible with other related statutes.

While it is speculation, a reasonable explanation can be advanced the elimination of the phrase "by any party" was prompted in view of a conflict arising with 35 U.S.C. 144 which provides the lower court shall advise the Commissioner of its decision and such decision ". . . shall govern the further proceedings in the case." If the Commissioner is "governed" by the decision as to further proceedings, a review statute under which the Commissioner could petition to this court, would conflict with Section 144.

35 U.S.C. 144 reads:

> "The United States Court of Customs and Patent Appeals, on petition, shall hear and determine such appeal on the evidence produced before

> the Patent Office, and the decision shall be confined to the points set forth in the reasons of appeal. Upon its determination the court *shall return to the Commissioner* a certificate of its proceedings and decision, *which shall* be entered of record in the Patent Office and *govern the further proceedings in the case.*" (Emphasis ours)

That section says the decision of the Court of Customs and Patent Appeals shall be returned to the Commissioner and shall govern the further proceedings in the case. It is submitted that section does not permit the Commissioner to attempt to have the decision reversed.

Note the difference between the statutory language in patent cases, and that in customs cases, where 28 U.S.C. 2601 contemplates review by this Court and provides:

> "*Any party* to a proceeding before the Customs Court who is dissatisfied with the decision of such court . . . may . . . apply to the Court of Customs and Patent Appeals for a review of all questions of law and fact . . .
>
> ". . . The decision of the Court of Customs and Patent Appeals shall be final unless set aside or modified by the Supreme Court, and the case shall be remanded to the Customs Court for further proceedings to be taken in pursuance of such decision."

Respondent submits that, in view of the foregoing statutes, the sounder view is the Commissioner of Patents has no right to seek review of Court of Customs and Patent Appeal cases, and a petition by the Commissioner of Patents does not give this Court jurisdiction over the instant case under 28 U.S.C. 1256.

(B) ARGUMENT ON THE MERITS

I. Introduction

There is a wide disparity between the viewpoints of Petitioner and Respondent, Manson, as to the merits issues involved in this case. Manson will show the governing facts and setting of this specific case preclude any decision on the particular question Petitioner's brief presented. We ask the Court to be especially conscious of semantics and the precision of language required in patent cases[6] where the same word may have different meanings depending on the context and circumstances.[7]

II. There Is No "Patentability" Issue Involved Since Manson's Claimed Process Has Already Been Held to be Patentable

Petitioner mistakes the question in this case, when it said:

> "On the merits, the question in this case concerns the meaning of the utility requirement for patentability in the Patent Act." (Pet. Br., p. 17.)

There is no issue of the utility[8] requirement for patentability; there cannot be any real issue involving

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[6] Patent law has been called "the metaphysics of the law." Justice Story in *Barrett et al.* v. *Hall et al.* (C.C. Mass., 1818) Fed. Case No. 1047, 2 Fed. Cas. 914, 923.

[7] For example: Distinguish carefully two meanings of the word "invention". In the phrase "priority of invention" it means priority of the acts of conceiving and embodying physically the claimed subject matter. In the context of "the invention" it means the mental concept defined by the claim of an application or patent.

[8] See pp. 49-53, *infra*, on the meaning of the words "utility" and "useful" in Patent Law.

any aspect of the patentability of Manson's claimed process. It is certainly "patentable," since it is patented. The existence of the Ringold et al. patent (which claims the same process) is the unassailable, unimpeachable proof that all requirements for patentability of the process have been satisfied. No matter what happens in this law suit, the process which Manson here claims will remain patentable and patented, either to Manson or to Ringold et al.

Petitioner further mistakes the nature of the question in this case, when it went on to say:

> "Specifically, it calls for a decision of the showing of utility which must be made to support an application for patent . . ." (Pet. Br., p. 17.)

No "showing of utility" to *support* Manson's patent application was ever required by the Patent Office. The Examiner himself specifically pointed this out, saying:[9]

> "It should be further noted that although there is no disclosure in the involved application showing the utility of the compounds produced by the processes recited in the appealed claims, this omission is not fatal to applicant's cause since the utility of same was known *prior* to the time the instant application was filed. See column 1, lines 17-26 of the Ringold et al. patent which issued October 13, 1959, three months prior to the filing date of the involved Manson application." (R-39)

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[9] Patent specifications are addressed to those skilled in the art. Whatever is published is known to those skilled in the art and so need not be actually disclosed in a specification. It constitutes unwritten disclosure. This doctrine goes back to *Loom Co.* v. *Higgins* (1881), 105 U.S. 580, 586: "That which is common and well known is as if it were written out in the patent . . ."

Accuracy in determining the true issues in the case is necessary because the Court below could not apply any "new ground of rejection" such as would be involved in any rejection of the Manson application for lack of patentable utility or of inadequate disclosure thereof, since the Manson application was not rejected by the Patent Office on any of these grounds. The Court of Customs and Patent Appeals has so interpreted its own jurisdiction since its very early days, *In re Tucker* (CCPA, 1932), 54 F. 2d 815, 12 USPQ 131. The same is true today.[10]

Petitioner errs in asserting or inferring the existence of any issue in this case based on the content or lack of content of Manson's patent application.

There is no "patentability" issue in this case based on the disclosure or lack of disclosure of Manson's specification, i.e., no issue involving 35 U.S.C. 112 requirements.[11] Theoretically it would be possible to have a situation where a patent application claims the same patentable subject matter as an issued patent, but where the patent application does not comply with all the statutory prerequisites, and so could not properly issue as a patent. Such a situation could have arisen had Manson merely claimed the instant process,

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[10] *In re Nygard* (CCPA 1965), 341 F. 2d 924, 928, 144 USPQ 586, 590:

> "This court is a court of *review* and reasons for rejection not made in the Patent Office are not properly before us."

Additional cases in point are collected in a note "The Scope of Review of the Court of Customs and Patent Appeals: Time for a Change?" 33 Geo. Wash. L. Rev. 955-974 (1965).

[11] Petitioner's arguments (Pet. Br. pp. 26, 33) based on 35 U.S.C. 112 refer to a section of the patent statute not here involved.

but failed to describe it properly in his specification. That type of situation is not here involved. There has never been any objection by the Patent Office to the Manson specification.

What then is the "patentability" issue? The answer: there is none! There is only an issue of compliance with Rule 204(b). Rule 204(b) is concerned only with prima facie proof of priority of invention. The so-called "patentability" issue is now exposed as one of whether "priority of invention" has been adequately proven to comply with the rule.

The actual issues in this case revolve around Rule 204(b), as to when and how its requirements have been satisfied.

III. The Primary Examiner Had No Right to Question the Adequacy of Manson's Rule 204(b) Affidavits But Had to Declare the Requested Interference

There is an issue in this case, completely ignored by Petitioner, which must be determined BEFORE the other merits issues in the case can be reached.

When Manson, seeking to provoke an interference with the Ringold et al. patent, filed his Rule 204(b) affidavits, questions arose as to whether there was compliance with the rule. Rule 204(b) then provided

> ". . . [applicant] shall file an affidavit . . . that his acts . . . with respect to the invention were sufficient under the law to establish priority of invention relative to the filing date of the patentee; and, when required the applicant shall file an affidavit (of the nature specified in rule 131) setting forth facts which would prima facie entitle him to an award of priority relative to the filing date of the patentee."

The question this Court must decide is: just *who,* within the Patent Office, could lawfully adjudge the legal sufficiency of Manson's Rule 204(b) affidavits to establish the requisite priority of invention? If the wrong body did so, then Manson's affidavits cannot be held legally insufficient.

It was the Primary Examiner who initially adjudged Manson's affidavits (R-19, 39, 48), saying at R-39:

> "The above identified affidavit under Rule 204(b) is insufficient to establish priority of invention relative to the filing date of the patentee."

The decision of the Primary Examiner was reviewed by the Board of Appeals, which said at R-53:

> "For the above reasons, we conclude that the affidavit under Rule 204(b) is not sufficient to establish a *prima facie* case of a reduction to practice of the process of claim 3 . . ."

The Primary Examiner and the Board of Appeals, in adjudging the sufficiency of Manson's affidavits to determine whether Manson's acts were sufficient to establish priority of invention relative to the filing date of the patentee, necessarily made a determination of priority of invention. This they had no right to do. The applicable statute, 35 U.S.C. 135, is very clear that:

> ". . . The question of priority of invention shall be determined by a board of patent interferences (consisting of three examiners of interferences) . . ."

The "board of patent interferences" is not the Primary Examiner or the Board of Appeals or the Commissioner of Patents, but a different body.[12]

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[12] See Appendix at p. 65, *infra.*

Manson continually protested and argued the Primary Examiner's lack of jurisdiction to determine reduction to practice and priority of invention questions. Manson unsuccessfully protested to the Primary Examiner (R-24), to the Commissioner of Patents on petition (R-36) and to the Board of Appeals (R-51). All took the view that the Primary Examiner was not really deciding priority, but was merely conducting certain preliminary investigations, which he was entitled to make, prior to the instigation of an interference proceeding. All were wrong.

The Court below reversed, citing its reasoning in *In re Dickinson and Zenitz* (CCPA, 1962), 299 F. 2d 954, 133 USPQ 39, as being directly in point. The Court below (R-65) recognized the Primary Examiner actually was making a determination of priority of invention, although disguising it under another name. The Court below recognized that the patent statute, 35 U.S.C. 135, specifically provides who shall make such determinations of priority of invention and that, in this case, the determination was not made by the particular body statutorily charged with that job. Naturally if a statute affirmatively sets forth who shall judge priority of invention, the negative pregnant is that no one else may so do.

Petitioner, by the arguments made and questions posed in his brief, in effect is asking this Court to make the same determination of priority of invention as the Primary Examiner made. But just as 35 U.S.C. 135 forecloses the Primary Examiner, so is this Court foreclosed.[13]

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[13] At a proper time, this Court will be able to reach such questions. But not at the present Rule 204(b) posture of this case, before any interference has been declared, much less decided.

If the Primary Examiner lacked jurisdiction initially to make such determination, this Court cannot here review the correctness of his decision. Else Manson will be deprived of his basic legal right to have the issue of priority of invention duly determined as provided by the statute.

Petitioner's brief never alludes to the above reasoning, which independently supports the decision of the Court below. Moreover, Petitioner, the Commissioner of Patents, has even amended Rule 204(b)[14] so that today the Patent Office procedure complies with the reasoning of the Court below. The propriety of the decision below becomes even more evident by contrasting the practices followed by the Patent Office in Rule 204(b) situations.

At the time the instant case arose, the procedure in the Patent Office was for the Primary Examiner [or his assistant] to examine a newly filed patent application to see if it fulfilled the various formal requirements which the law specifies for any patent application. If the application was found to be otherwise allowable, save for the existence of an interfering application or patent, then the Primary Examiner asked the junior interfering applicant to state under oath his earliest date of conception, since if the junior party could not aver a date earlier than the senior party's filing date there was no point in having an interference. This was because, if there was no possible way the junior party could win, there would be no actual priority question raised and no point in

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[14] Amended Rule 204(c): ". . . the examiner . . . will consider this material [set forth in the affidavit] only to the extent of determining whether a date prior to the effective date of the patentee is alleged, and if so, the interference will be declared."

declaring an interference. For example if Manson did not allege he made his invention before Ringold et al.'s filing date, he could never win the interference under any circumstances. No actual question of priority of invention had to be determined in such a situation, since all that is involved is a simple comparison of a filing date (which is a matter of record) versus an alleged date. No one disputes the Primary Examiner could and still can do this much.

In the instant case, in order to determine whether there ought be an interference, the Primary Examiner went beyond this and made certain legal determinations involving disputed views of the law involving priority. This the Primary Examiner cannot do.

Since the decision below was rendered, and effective as of January 1, 1965, the Patent Office has changed its rules and practice as to what a Primary Examiner can decide preliminary to the declaration of an interference. Today under new Rule 204(b) and 204(c) (*infra,* p. 63), a Primary Examiner may consider the affidavits submitted only to the extent of determining whether a date prior to the effective filing date of the patentee is *alleged.* If so, he declares the interference, and turns the entire file over to the Interference Division which then makes the determination of whether or not the affidavits state a *prima facie* case of priority.

This change in Rule 204(b) was clearly made in view of the decisions of the Court below in the instant case, and in *In re Dickinson and Zenitz* (CCPA, 1962), 299 F. 2d 954, 133 USPQ 39, and seems to be an admission of the correctness of the holding below, especially since Petitioner has not raised it as an issue in this case.

If this Court finds the Court below was correct in holding that the Primary Examiner had no proper authority to make a determination of priority of invention, it need not reach the other issues in this case.

IV. Manson Complied With All the Requirements of Rule 204(b)

Since compliance with Rule 204(b) is the keystone to this case, we shall in this brief analyze the various elements of the rule, including related rules and statutes, to see how they can be satisfied, so we can later show they actually were satisfied in this case.

In pertinent part Rule 204(b) requires:

> ". . . before an interference will be declared, [the applicant] shall file an affidavit . . . that his acts . . . with respect to the invention were sufficient under the law to establish priority of invention relative to the filing date of the patentee; and, when required, the applicant shall file an affidavit (of the nature specified in Rule 131) setting forth facts which would prima facie entitle him to an award of priority relative to the filing date of the patentee."

The type of affidavit specified in Rule 131, and which is required by Rule 204(b), is one in which the affiant

> ". . . shall make oath to facts showing a completion of the invention in this country before the filing date of the application on which the domestic patent issued . . ."

and wherein

> "The showing of facts shall be such, in character and weight, as to establish reduction to practice prior to the effective date of the reference . . .".

Rule 204(b) is related to 35 U.S.C. 102(g) which says

> ". . . in determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, . . .".

A. MANSON PRIMA FACIE ESTABLISHED "PRIORITY OF INVENTION" BY REDUCING HIS INVENTION TO PRACTICE BY THE CRITERION THIS COURT SET FORTH IN CORONA CORD v. DOVAN

"Priority of invention" is simply a question of deciding who was the first to invent the claimed subject matter. Under United States law, only the "first inventor" is entitled to the patent, without regard for who was the first to file a patent application. A key factor in determining priority of invention is the date of "reduction to practice" of the claimed invention.

"Reduction to practice"[15] refers to the completion of the invention, which began as an idea, by physically applying that idea to the production of a tangible result. It is the act of reducing the invention from a mental concept to a tangible form.[16] There are two kinds of reduction to practice. One is "constructive" reduction to practice; this occurs when a patent application disclosing the invention is filed. The other kind is "actual" reduction to practice; it generally involves the establishment of a successful performance or demonstration of the claimed inven-

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[15] For a general discussion of "reduction to practice" see Deller's Walker on Patents, 2nd ed. 1964, sec. 46, pages 199-210.

[16] *Clark Thread Co.* v. *Willimantic Linen Co.* (1891), 140 U.S. 481, 489:

> "A conception of the mind is not an invention until represented in some physical form, . . ."

tion. This can vary according to the type of invention involved.

We are here concerned with the question of when Manson completed the actual reduction to practice of his claimed invention. This court had occasion to discuss when an actual reduction to practice of a process has been accomplished in *Corona Cord v. Dovan* (1928), 276 U.S. 358, 383, saying:

> "A process is reduced to practice when it is successfully performed. A machine is reduced to practice when it is assembled, adjusted and used, a manufacture is reduced to practice when it is completely manufactured. A composition of matter is reduced to practice when it is completely composed. Walker on Patents, Section 141(a); Hunter v. Stikeman, 13 App. D.C. 214, 226; Mason v. Hepburn, 13 App. D.C. 86, 92; Lindemeyr v. Hoffman, 18 App. D.C. 1, 5; Roe v. Hanson, 19 App. D. C. 559, 564."

In the instant case the acts alleged in the various affidavits Manson filed are sufficient "prima facie" to entitle him to an award of priority relative to the filing date of the patentee. The various affidavits establish Manson's claimd process was successfully performed (to make the 2-alpha compound it is supposed to make) earlier than the filing date of the Ringold et al. patent.

We point out that the Court should not attempt to determine whether Manson actually will win the interference which will ultimately be declared with the Ringold et al. patent. Rule 204(b) says only an affiant must aver facts which will—

> ". . . *prima facie* entitle him to an award of priority."

The term "prima facie" is defined in Black's Law Dictionary, third edition, as

> "at first sight; on the first appearance; on the fact of it; so far as can be judged from the first disclosure; presumably."

The presence of the term "prima facie" affects the affidavit statements and proofs required by Rule 204(b). The burden on Manson is not the same as it might be after the interference has been declared and all the proofs have been presented, when the case is ready for final determination. *Certainly to establish the right to be a contestant in an interference, less is required than to establish the right to win the interference after declaration. In re Dickinson and Zenitz* (CCPA, 1962), 299 F. 2d 954, 958, 133 USPQ 39, 43.

Using this definition, all Manson had to do to comply with Rule 204(b) was to make out by affidavit a case which presumably would be legally sufficient if all the facts alleged are true. The situation is similar to what a trial court, in a civil action, must consider when faced with a motion to dismiss a complaint. It takes the facts alleged, assumes them all to be true, and ascertains whether, under any possibly applicable law, a cause of action has been stated.

The Examiner and the Board of Appeals had no right to question any of the facts averred by the Manson affidavits; and must accept them. Whenever these facts evidence an actual reduction to practice under the doctrine of any viable case stating the minimum standards or requirements for an actual reduction to practice, the requisite *prima facie* case of priority of invention is established. Later on, during the interference testimony period, the opposing party, if it can,

may show by cross-examination and rebuttal testimony that there are other circumstances which change the "facts" of the affidavit so that the particular decision relied upon for the establishment of a *prima facie* case no longer applies. But this comes later, and is not the concern of the Primary Examiner, or of the Board of Appeals, or even of this Court.

The allegations of Manson's various affidavits, when accepted as facts, as they must be at the Rule 204(b) present stage of the proceedings, are sufficient to constitute actual reduction to practice, under the doctrine of *Corona Cord* v. *Dovan* (1928), 276 U.S. 358, 383, where this Court set the criterion as:

> "A process is reduced to practice when it is successfully performed."

This Court there was concerned with ascertaining whether the patentee, Weiss, or someone else, Kratz, was the prior inventor of the claimed process for vulcanizing rubber. This Court pointed out both Kratz and Weiss founded their claims of invention on cured slabs of rubber which had been vulcanized, rather than having made anything truly practical out of the rubber. The Court said at page 373:

> "It now appears, without contradiction, that the only rubber Weiss made during the early part of the year 1919 from D.P.G. was test slabs of rubber in which D.P.G. was the accelerator, and that in fact neither he nor anybody in the Rubber Company had vulcanized rubber goods, as Daniels described them, before the Kratz publication. But we do not think this would invalidate the patent, for the reason that the actual fact was that these test slabs of rubber with D.P.G. if proven to be properly vulcanized, as the evidence seems to show, were a demonstration of the utility of D.P.G. as an

accelerator and were a completed and demonstrated discovery constituting reduction to practice. Production of rubber-goods for use or sale was not indispensible to the granting of the patent."

The Court said at page 384:

"It is a mistake to assume that reduction to use must necessarily be a commercial use. If Kratz discovered and completed, as we are convinced that he did, the first use of D.P.G. as an accelerator in making vulcanized rubber, he does not lose his right to use this discovery when he choses to do so, for scientific purposes or purposes of publication, because he does not subsequently sell the rubber thus vulcanized, or use his discovery in trade . . ."

The various affidavits and exhibits filed on behalf of Manson to meet the requirements of Rule 204(b) are printed in the record at R-9, 10, 33, 46 and 47; we summarized them at page 7 of this brief. The Board of Appeals discussed them, saying:

"It does not appear that the Examiner questions the affidavits filed under the provisions of Rule 204(b) except as to the showing relative to the utility of the compounds produced by the process of Claim 3. The issue presented is whether the affidavits are sufficient in the [sic] respect." (R-50)

It is undisputed these affidavits show Manson did actually carry out his claimed process and did use it to make the 2-alpha compound prior to the filing date of the Ringold et al. patent. His successful performance of the process constitutes the requisite *prima facie* completion of the claimed invention prior to the Ringold et al. filing date in full compliance with Rule 204(b).

B. MANSON COULD AND DID COMPLETE HIS PROCESS INVENTION, WITHOUT REGARD TO WHETHER THE KNOWN COMPOUND PRODUCED HAD A KNOWN UTILITY

(1) Petitioner infers that no patentable invention can be completed until a use[17] is found. Manson's position is that the 2-alpha compound produced by his process had a known utility.[18] However, Manson could complete his invention without regard to whether or not the 2-alpha compound was known to be useful by completing the requisite tests. In considering when an invention has been completed the Court must be cognizant of the peculiarities of the particular type of invention involved. 35 U.S.C. 101 states the various statutory types of invention which could be patentable and so conceivably could be involved, as: "machines," "manufactures," "compositions of matter" and "processes." The reason for the application of any "utility requirement" or of any test requirement for an actual reduction to practice may vary with the invention, so it becomes important to know the underlying philosophy, which we will now discuss.[19]

When has a claimed "invention" been completed and actually reduced to practice? We submit the answer is: When it is known that the physical embodiment of the "invention" is what it purports to be. A test may or may not be required to demonstrate this completion of the invention, depending upon the exact subject-matter, its statutory class, and the apparency of what it will do. Sometimes an invention can be

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[17] See pp. 49-53, *infra* for a discussion of the meaning of "use".

[18] See pp. 44-49, *infra*.

[19] See Note "The Legally Complete Invention—A Study of the Requirement of Testing to Establish An Actual Reduction to Practice", 33 Geo. Wash. L. Rev. 740-763 (1965).

completed without an actual test because it is obvious that it will work for the purpose which is a part of its name, so that testing is superfluous. We will now apply this reasoning to various statutory classes of subject-matter.

Consider a new *machine,* for example, a "pencil sharpener." By definition, a "pencil sharpener" is a device that sharpens pencils. No assembly of machine elements that can not sharpen a pencil can be said to be a pencil sharpener. The only way one can know whether a particular machine is or is not a pencil sharpener is to try to sharpen a pencil with it. Thus to know whether a particular machine is what it purports to be, it is necessary to *use* it for the purpose which is a part of its name. Until this has been done the invention has not been completed. That is the type of use or test necessary.

Some other illustrative examples are: (1) a heater; until one knows whether it is capable of heating, a new device cannot be called a heater, and (2) a stapler; until one knows whether it can staple things together, a new device cannot be considered a stapler.

Compositions of matter inventions may, in some instances, differ from machine inventions in that the name sometimes does and sometimes does not give an indication of its end use. Where the composition of matter is named in such manner as to indicate the end use, the invention thereof cannot be completed until it is known the composition has the particular end use. An example of such a composition of matter would be a "lubricating oil." Nothing can be a "lubricating oil" until it is known it is an oil and capable of lubricating. Another example is an "insecticidal com-

position." Nothing can be an insecticidal composition until it is known it can kill insects.

Examples of the other type of composition of matter include chemical compounds claimed *per se*. Once whatever the chemist has made in his laboratory is analyzed so there can be no further question as to its identity, then the act of inventing that compound has been completed. The operativeness of the invention (the concept of the compound) has been shown in that it is what it purports to be; it has been proven to exist in tangible, physical form. To go beyond this point and find out what the compound can be used for is a separate operation, which could require the making of additional inventions. An example is "acetylsalicyclic acid," which is the name of a chemical compound. That particular chemical compound is more commonly known as aspirin, and the Court is well aware of various ways in which aspirin is used.[20] To observe that aspirin may be administered to relieve pain is a separate and distinct discovery from the act of inventing the chemical compound, aspirin, itself. Until someone first invented and made aspirin, no one could possibly have discovered aspirin could be administered to relieve pain.[21]

Like compositions of matter, a *process* invention may or may not involve tests of the product made by the use of the process in order to know whether the process operates and its invention has been completed. If the particular process is supposed to make a

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[20] The story of aspirin is told in *Kuehmsted* v. *Farbenfabriken* (CCA 7, 1910), 179 Fed. 701.

[21] New uses for aspirin are still being discovered and patented. *In re Caldwell* (CCPA, 1963), 319 F. 2d 254, 138 USPQ 243.

"lubricating oil," you cannot be sure the process works and has been completed until you know the oil made thereby is capable of lubricating. But if the particular process is supposed to make "aspirin," all you have to do is test the material to identify it as aspirin. Once you are sure of this, you are sure the process works, and that the invention has been completed. That is the situation here. The process claimed by Manson is supposed to make the 2-alpha compound. The process was operated, and the material made was identified as the 2-alpha compound. This established that the process worked to produce the desired product and the invention claimed was thereby completed. Petitioner confuses the process (which is the "invention" here claimed) and the product made therefrom (which is not the "invention" claimed).

(2) Since the Court is here concerned with a process invention, some explanation of the customary relationship of a process and the product made therefrom may prove helpful.

The invention claimed in the Manson application is a process invention. Normally courts distinguish a process from the material made by the use of the process. The exception to the rule is found in *James* v. *Campbell* (1881), 104 U.S. 356, 376:

> "A patent for a process and a patent for an implement or a machine are very different things. *Powder Co.* v. *Powder Works,* 98 U.S. 126. Where a new process produces a new substance, the invention of the process is the same as the invention of the substance . . ."

Contrary to the situation there referred to, here the new process produces not a "new" but an "old"

or "known" substance, so the invention of the second process for making the old substance could not be the same as the invention of the substance.

The instant situation follows the general rule, which this Court has long recognized, that a process and the product made therefrom are independent of each other. As this Court explained in *Rubber Company* v. *Goodyear,* 9 Wall. (76 U.S.) 788, 796:

> "Patentable subjects, as defined by the Patent Law, are 'any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement on any art, machine, manufacture or composition of matter'. A machine may be new and the product or manufacture proceeding from it may be old. In that case the former would be patentable and the latter not. The machine may be substantially old and the product new. In that event the latter, and not the former, would be patentable. Both may be new, or both may be old. In the former case both would be patentable; in the latter neither. *The same remarks apply to processes and their results.* Patentability may exist as to either, neither, or both, according to the fact of novelty, or the opposite. The patentability, or the issuing of a patent as to one, in nowise affects the rights of the inventor or discoverer in respect to the other. They are wholly disconnected and independent facts. Such is the sound and necessary construction of the statute." (Emphasis added)

The present 1952 Patent Act differs from the portion of the previous statute referred to in the above quotation only in replacing the term "art" by its synonym "process."

Clearly this Court has long distinguished between a process and the product made by using the process.

The Court of Customs and Patent Appeals also differentiates the invention of a process from the products made thereby, as shown by three recent cases: *In re Larsen* (CCPA 1961) 292 F. 2d 531, 130 USPQ 209; *In re Surrey et al.* (CCPA 1963) 319 F. 2d 233, 138 USPQ 67; *In re Albertson* (CCPA 1964) 332 F. 2d 379, 382, 141 USPQ 730, as well as the decision in the instant case.

It appears that, under the view expressed by this Court, the Court below, and the Patent Office [which was affirmed in the three cases referred to], a process invention is to be differentiated from the product made therefrom. It follows the process can be useful whether the product made therefrom is useful or not. Even the first process of making aspirin did not magically change from a "useless" to a "useful" invention, on the day a use for aspirin was discovered. The useful quality of the process of giving birth remains immutable whether the baby grows up to be a useful citizen or a useless one.

We regard it as anomalous that Petitioner, the Commissioner of Patents, should now take the diametrically opposed position the act of inventing a process cannot be completed until the resultant product has not only been made, but has been found to have a specific independent use. If that is the law, then one process, the process of making a new product, can never be completed until a second and different process, the process of using the new product for a specific purpose, has also been completed.

This Court has previously refused to jumble together processes and products. Thus, it held a new process for producing an old compound could be patentable

in *Cochrane* v. *Badische Anilin and Soda Fabrik,* (1884) 111 U.S. 293, 311:

> ". . . The article produced by the process described was the alizarine of Madder, having the chemical formula $C_{14}H_8O_4$. It was an old article. While a new process for producing it was patentable, the product itself could not be patented, even though it was a product made artificially for the first time, in contradistinction to being eliminated from the Madder root."

In the case of *The Wood-Paper Patent* (1874) 90 U.S. 566, 593, this Court said:

> "The first (no. 1448) is a patent for a product or a manufacture, and not for any process by which the product may be obtained. The second (no. 1449) is for a process and not for a product. It is quite obvious that a manufacture or a product of a process, may be no novelty, while, at the same time, the process for agency by which it is produced, may be both new and useful—a great improvement on any previously known process, and, therefore, patentable as such."

In *Holland Furniture Company* v. *Perkins Glue Company* (1928) 277 U.S. 245, 255, this Court said:

> "A patentable process is a method of treatment of certain materials to produce a particular result or product. *Cochrane* v. *Deener,* 94 U.S. 780. The description of one does not necessarily embrace the other. Either or both may be patentable."

In the instant case the majority of the Court below properly differentiated the "processes" and "products" made thereby, and held Manson could and did

complete the act of inventing his process, without regard to whether the 2-alpha compound produced had a known utility.

V. Manson's Claimed Process is a Useful Process Since It Makes a Previously Known Compound Which Itself Is Useful Under 35 U.S.C. 101

The invention here involved is a process for making the 2-alpha compound. If the 2-alpha compound is established to be "useful" as of a date prior to the filing [or priority] date of the Ringold et al. patent, then the process of making such compound would be useful, even under the view of the applicable law asserted by Petitioner,[22] and Manson would have complied with Rule 204(b).

The particular date Manson must beat is 1956 December 17.[23] Manson must prevail if a "use" for the 2-alpha compound was known prior to that priority date. Manson submits an early enough use was known when the journal article (R-59) was published in the November 1956 issue, since it disclosed a use for the 2-alpha compound.[24]

The Court is aware that, by definition, the nature of any "chemical compound" is such that each molecule is the same and acts the same no matter how made or where found. Any batch of a specific chemical compound, whether found in this country or any other country, whether made by a particular process or by

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[22] Pet. Br. p. 28.

[23] This is the date of Ringold et al.'s Mexican application. The Ringold et al. patent was accorded the benefit of this earlier date, under the international convention (R-57).

[24] Manson had actually read this journal article prior to the critical date (R-46).

any other process, will be identical in all respects to any other batch. Once it is definitely established that what the chemist has actually is a particular compound, there is no further question the compound so made will do and act just like any other sample of the compound. This means that, as soon as more of the compound is available, it is automatically apparent the additional amount will do whatever previous amounts of the compound did, and there is no need actually to test it or use it for such purposes. If the 2-alpha compound made as described in the journal article is "useful," then the 2-alpha compound Manson made is equally as useful since it will do precisely the same things.[25] Thus, the test is whether the journal article states a "use" for the 2-alpha compound.

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[25] *Thomas et al.* v. *Michael et al.* (CCPA, 1948) 166 F.2d 944, 77 USPQ 216, 218:

"Where the utility of a new product produced by a novel process is not known or apparent, a test is required to establish reduction to practice of that process. See *Bogoslowsky* v. *Huse*, 31 C.C.P.A. (Patents) 1034, 1038, 142 F.2d 75, 78, 61 USPQ 349, 352. But where the utility of an old product produced by a novel process is known, a test is not required to establish reduction to practice of that process. See *Larson* v. *Eicher*, 18 C.C.P.A. (Patents) 1497, 49 F.2d 1029, 1031, 9 USPQ 461; *Fenton R. Brydle* v. *Harry H. Honigbaum*, 19 C.C.P.A. (Patents) 773, 54 F.2d 147, 11 USPQ 219; *Kyrides* v. *Bruson*, 26 C.C.P.A. (Patents) 986, 102 F.2d 416, 41 USPQ 107 . . .

". . . Appellants' position, as hereinbefore described, was based solely on the ground that the product of the count was an old composition the utility of which had been known and demonstrated at the time it was prepared by them in June, 1937.

"We are convinced, for the reasons stated, that the utility of the catalyst produced by appellants in carrying out the process of the count on June 17 to 24, 1937 was known not only in the art but also was known to appellants herein; and that the decision of the board requiring a test of the catalyst to effect its reduction to practice was manifestly wrong."

Respondent Manson will here show the 2-alpha compound meets this test under applicable precedents of the Court of Customs and Patent Appeals; this will suffice to prove the *prima facie* case, which is all that is required.[26]

The 2-alpha compound is "useful", since it meets and exceeds the standard of utility required for a chemical compound, as set forth in a viable precedent, *In re Nelson et al* (CCPA, 1960), 280 F. 2d 172, 126 USPQ 242. In the *Nelson* case, the claimed compound (which was a steroid) was found to be useful under 35 U.S.C. 101. There the disclosure of utility was (280 F. 2d at 175):

> "The cardiac glycosides, such as digitoxigenin and the like, comprise steroids which contain an OH-group in the 14-position. Important physiological properties are attributed to these steroids. *However, synthetically produced C-19 14-hydroxyandrostenes wherein the double bond is attached to carbon atom 5 have not heretofore been known.*
>
> *A primary object of the present invention is the embodiment of such synthetically-produced compounds* corresponding to formula I supra.[1] *These new compounds are valuable intermediates in the preparation of steroids* wherein a hydroxyl group is present in the 14-position, and of steroids containing a 14, 15-double bond, and of steroids the synthesis of which requires such groupings.
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> Conversion of the androstene compounds to produce analogous saturated 14-hydroxy steroids is

[26] Manson does not here have to argue the correctness of the applicable precedents, but only to show that *one* exists. That is enough to prove Manson's right to be put in interference. Later on perhaps the decision in the interference could be questioned on the ground that the law applied is incorrect, but not at this preliminary stage of the proceedings.

effected by hydroxy steroids is effected by hydrogenating Δ 5-double bond, for example by catalytic methods."

The Court held the above-quoted utility was legally sufficient under 35 U.S.C. 101, saying, 280 F. 2d at 180:

"Now let us consider whether applicants' new compounds, the claimed C-19 14-hydroxy-Androstenes, are 'useful' by the legal standards discussed above, according to the information which is given to us in the specification. We are told thereby that these are new androstenes, of a kind never before made (and novelty has not been questioned), that they are of a type which steroid chemists can use in well-known reactions to produce steroids of a class at least some members of which are known to have useful therapeutic properties. Appellents' point is that new 'building blocks' *of value to the researcher* have been supplied which have *utility as intermediates* in the search for cheaper and shorter routes to the synthesis of steroids having therapeutic or similar ultimate utility.

The Patent Office position seems to have been that there must be a presently existing 'practical' usefulness to some undefined class of persons. We have never received a clear answer to the question 'Useful to whom and for what?' Surely a new group of steroid intermediates is *useful to chemists doing research* on steroids, and in a 'practical' sense too. Such intermediates are 'useful' under section 101. They are often actually placed on the market before much, if anything, is known as to what they are 'good' for, other than experimentation and the making of other compounds in the important field of research. Refusal to protect them at this stage would inhibit their wide dissemination, together with the knowledge of them which a patent disclosure conveys, which disclo-

sure the potential protection encourages. This would tend to retard rather than promote progress.

The new androstenes, being *useful to research chemists* for the purposes disclosed by appellants, are clearly useful to society and their invention contributes to the progress of an art which is of great potential usefulness to mankind. They are new steroids which in known ways can be made into other steroids, thus furthering the development of this useful art.

We conclude that the claimed compounds are 'useful' within the meaning of section 101 and that there is a disclosure of the utility in the specification."

Compare the situation in *Nelson* with the instant situation. Here the particular utility of the 2-alpha compound disclosed in the journal article (R-59) was that it is a member of a class of steroids at least some members of which are known to have useful therapeutic properties as tumor inhibitors,[27] and that it is being tested for those same therapeutic properties. In the *Nelson* case the steroid compound was to be used as an intermediate to make other compounds which would then be members of the class of steroids at least some members of which were known to have useful therapeutic properties. The utility of the 2-alpha compound steroid of the instant case is more apparent than that of the steroid compound in the *Nelson* case since here the claimed compound itself belongs to a class, closely related members of which

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[27] The use of a compound as a tumor inhibitor in rats was held to be sufficient utility to satisfy 35 U.S.C. 101 in *In re Bergel and Stock* (CCPA 1961) 292 F.2d 955, 130 USPQ 206, whereupon claims to the compound and a process for making the compound were allowed.

are known to have useful therapeutic properties, and itself was being tested.

We have shown that, if the disclosure of the journal article were incorporated in appellants' patent application,[28] and if the 2-alpha compound were novel, it would be held by the court below to have 35 U.S.C. 101 utility. Therefore, the 2-alpha compound has utility and is a useful product under the law.[29] The process of making it is necessarily useful, and Manson's affidavits were clearly sufficient under Rule 204(b).

VI. Manson's Process is "Useful", As That Term Is Defined In Patent Law, Where it is a Term of Art

Petitioner phrases the question in this case as

> "Whether a process is 'useful' within the meaning of the Patent Act . . .". (Pet. Br. p. 2)

That question evokes a problem in semantics which permeates this entire case. The words "useful," "useless," "utility," etc. which appear so many times in the various writings filed and cited in this case, have many different meanings and shades of meanings. So much so that "utility" has been called the "chameleon" of the patent law [Burke "Utility of Chemical Inventions: Chameleon of the Patent Law" 43 J.P.

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[28] As shown in footnote 9, supra, it is an unwritten part of the disclosure.

[29] Petitioner (Pet. Br. p. 33) seems to concede the law ought allow some patents to be granted upon inventions whose only use is scientific or experimental, "in the sense of a known specific scientific application of the patent as a research device presently capable of beneficial exploitation." That appears to us to be precisely the type of use referred to in the journal article on which Manson relies.

O.S. 205 (1961)]. The words, which are sometimes words of "art" and sometimes not, have different meanings in different contexts, so it is vital to be aware of the exact context. Thus the "utility" referred to in 35 U.S.C. 101 differs from the "utility" referred to in 35 U.S.C. 112 and from the proof of "utility" required to establish an actual reduction to practice.[30] The terms are also used in connection with "infringement" situations, where they have yet different meanings.[31]

The complexities of the terms "useful," "utility," etc., and the many different situations in which they are used in a different manner may further be appreciated from the fact a leading text devotes over 90 pages to the various aspects of the subject.[32]

Petitioner does not apply the terms "useless" and "useful" properly. These are terms of art in Patent Law,[33] having meanings derived from judicial deci-

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[30] A definitive explanation of the distinctions is found in *In re Nelson et al.*, (CCPA, 1960), 280 F.2d 172, 126 USPQ 242, which is the leading case in this area.

[31] *Stow* v. *Chicago* (1881), 104 U.S. 547, 550: "A patentee who is the first to make an invention is entitled to his claim for all the uses and advantages which belong to it. *Woodman* v. *Stimpson*, 3 Fish. Pat. Cas. 98."

Roberts v. *Ryer* (1875), 91 U.S. 150, 157: "It is no new invention to use an old machine for a new purpose. The inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not."

[32] Deller's Walker on Patents, 2nd Edition, Sections 83-101, pages 477-571; especially Sections 84, 86, and 89.

[33] "A study of the cases reveals that the legal significance of 'useful' in the patent statute differs from the general conversational connotation of the word." *Cusano* v. *Kotler* (CA 3, 1947) 159 F.2d 159, 162, 72 USPQ 62.

sions of long standing by judges of recognized special ability in Patent Law. The correct meaning is basically that stated by Justice Story in *Bedford* v. *Hunt et al.* (C.C. Mass., 1817) Case no. 1,217, 1 Mason 302, 3 Fed. Cas. 37:

> "STORY, Circuit Justice, (after stating the facts.) No person is entitled to a patent under the act of congress unless he has invented some new and useful art, machine, manufacture, or composition of matter, not known or used before. By useful invention, in the statute, is meant such a one as may be applied to some beneficial use in society, in contradistinction to an invention, which is injurious to the morals, the health, or the good order of society. It is not necessary to establish, that the invention is of such general utility, as to supersede all other inventions now in practice to accomplish the same purpose. It is sufficient, that it has no obnoxious or mischievous tendency, that it may be applied to practical uses, and that so far as it is applied, it is salutary. If its practical utility be very limited, it will follow, that it will be of little or no profit to the inventor; and if it be trifling, it will sink into utter neglect. The law, however, does not look to the degree of utility; it simply requires, that it shall be capable of use, and that the use is such as sound morals and policy do not discountenance or prohibit."

An extensive review of other authorities defining "utility" in a similar manner appears in *In re Nelson et al.,* at 280 F. 2d 172, 178-180, 126 USPQ 242, 248-250.

Manson's process is "useful" both in a patent law sense as well as a non-patent law sense. It is not frivolous or worthless or injurious to the well-being and morality of the public. The process was invented by an expert researcher experienced in research proj-

ects designed to produce new medicinal agents in the field of endocrinology (R-33).[34] Manson was not just "playing games." He was performing scientific work of the highest caliber, which resulted in *an alternative way* to make the 2-alpha compound. Now if anyone wants some 2-alpha compound, there are two ways to make it. Manson's discovery takes away nothing the public had before, but adds another tool to the public's storehouse of technology. This is true "usefulness" in every sense of the word.

Petitioner's Brief p. 25 points out that, prior to 1950, the Patent Office did not reject chemical patents for lack of utility. The Patent Office Board of Appeals specifically said in *Ex parte Watt* (1942), 63 USPQ 163, 165:

> "Regardless of whether applicant's compounds could or could not be used in a froth flotation process we are of the opinion that they could be regarded as intermediates in the preparation of other compounds, since it is obvious that any organic compound can be so used. This is a use other than that disclosed by applicant."

The recent decisions of the Court below[35] did not change the law, but only restored it somewhat to what

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[34] Manson is employed by Sterling-Winthrop Research Institute, the research facility of Winthrop-Stearns and Sterling Drug Inc. Ringold et al. is employed by Syntex. These companies are well-known reputable pharmaceutical companies.

[35] Many other recent decisions of the Court below discuss the "utility" of a process, and support Manson's position here, including: *In re Szwarc* (CCPA 1963) 319 F.2d 277, 285, 138 USPQ 208, 214; *In re Wilke et al.* (CCPA 1963) 314 F.2d 558, 563-64, 136 USPQ 435, 442; *In re Adams et al.* (CCPA 1963) 316 F.2d 476, 478, 137 USPQ 333; and, *In re Larsen* (CCPA 1961) 292 F.2d 531, 130 USPQ 209, 211.

it always had been, so far as the definition of "useful" is concerned. For over 150 years the United States patent system operated on the thesis that chemical compounds have inherent utility so they are necessarily useful, and the country prospered. None of the terrible things Petitioner threatens would happen, if the Court affirms the decision below, happened during that long period of time.

VII. Petitioner's Brief Confused the Ringold et al. Patent and Journal Article

There appears to be a certain amount of confusion in Petitioner's brief because of the fact that "Ringold et al." is both the patentee with whom Manson seeks an interference and the author of the journal article here involved. For all purposes of this case, it is irrelevant and immaterial that the same persons performed both acts. Thus if the Court were to think of the journal article as having been written by "X"; and the patentee with whom Manson seeks an interference as "Y", it would have a true and less confusing picture.

Petitioner confuses the Ringold et al. journal article with the Ringold et al. patent and as a result Petitioner feels that Manson is somehow taking something away from Ringold et al. For example Petitioner's Brief p. 18 says:

> "In obtaining a patent upon the process involved in this case to produce such a known organic compound, Ringold and Rosenkranz disclosed a potential therapeutic use for the compound as an inhibitor of the growth of tumors in animal organisms."

That is not true. *The particular utility quoted was disclosed in the journal article* [see R-59-60] *and not*

in the Ringold et al. *patent.* In the patent (see R-57, column 1, line 21) a different utility statement appears, viz:

> "The products of the process of the present invention have a useful high anabolic-androgenic ratio and are especially valuable for treatment of those ailments where an anabolic or anti-estrogenic effect together with a lesser androgenic effect is desired."

Petitioner's Brief p. 18 goes on to say:

> "Respondent seeks a determination that his discovery of the process was prior to Ringold's—and hence that he, rather than Ringold, should be deemed entitled to the process patent. It is common ground that, to prevail, respondent must show that he arrived at a patentable invention prior to Ringold."

Manson does not have to show he invented his process before Ringold et al. published the journal article describing a different process. Petitioner fails to recognize Ringold et al. made two different inventions; one being the first process of the journal article and the other the alternative process of the patent. Manson only seeks to contest priority of the latter alternative process invention.[36]

VIII. Affirmance of the Decision Below Will Serve The Objectives For Which Our Patent System Was Established

While we have shown that Petitioner's arguments concerning patentability of processes go to issues not here involved, we are somewhat fearful not to answer them. Further, if the newspaper accounts are cor-

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[36] Ringold et al. likely also made a third distinct invention which Manson is not contesting either, the 2-alpha compound, *per se.*

rect that the Court is examining the entire aspect of "utility" in patent cases, it may welcome our comments. Therefore we will go beyond the facts of this case, and consider the most extreme case that could arise, i.e., the patentability of a new process for making a new compound, for which compound no utility has been found as yet. We submit the present state of the law is such that even this type of a process is useful and, assuming all other statutory requisites have been met, is patentable, and this is a proper result. We submit this is the only result that serves public policy. It does so mainly by encouraging inventors to make early disclosure of their new processes which successfully operate to produce new products.

The sole reason for the existence of our patent system, as stated in the Constitutional provision, is "to promote the progress of science and useful arts." Progress involves a continual advance in which each man builds upon the earlier discovery of another. The progress of science and useful arts is promoted by encouraging inventors to make their inventions known to all, rather than to keep them secret. This disclosure to the public is the *quid pro quo* which is given the public in return for the seventeen year monopoly of the patent. *United States* v. *Dubilier Condenser Corp.* (1933) 289 U.S. 178, 186.

The Court is well aware that, with few exceptions, inventors will not publish details of their discoveries if doing so would jeopardize their property rights. The desideratum, dissemination of information, will occur only when doing so would not adversely affect the inchoate patent right of the inventor or his assignee. The earlier an inventor publishes his discoveries, the earlier the public gains the knowledge and can use it

as an experimental building block for the creation of further discoveries. Patent applications will be filed earlier, patents will issue earlier and expire earlier, thereafter enabling all to use the specific invention claimed.

Research will be greatly impeded if inventors feel they are required to make two different inventions before they may safely publish on their first discovery. If a chemist would not only have to invent a process for making a new compound, but then separately invent a use for that new compound, unless and until such a use was found the chemist would not publish, since this would start the running of the one year statutory bar period within which he must apply for a patent. If the inventor never found a use for his new compound, why would he ever publish details of his new process? If that were the law, it is most likely that important processes would be permanently lost to the public. Many of today's commercially important processes are derived from, or are themselves processes invented some years ago which made compounds for which no "use" was then known.[37] Certainly such processes were useful and resulted in progress which would not have occurred under the rule of law which Petitioner proposes.

If Respondent is correct that public policy prefers disclosure to secrecy, then his position promotes it and Petitioner's position hinders it.

The Court ought be aware of some of the possible ramifications of the decision in this case on other situations. We have mentioned before the decision below

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[37] Some representative examples include tetraethyl lead (used in gasoline), silicones, polyurethanes (plastics) and uranium.

merely continues the state of the law as it has been. Over the years many of the various problems attendant to knowing when an invention has been "made" have been answered and guidelines have been established by the courts. Petitioner's Brief at page 19 admits courts will be faced with many difficulties if its view is adopted, as to when a sufficient extent of utility has been established for the product in order for a new process to be patented. This could become a serious matter because the question of when an invention has been completed cuts across many other statutes and situations. We will now mention only a few, which are representative of many others:

The TVA Act:

Title 16 USC 831(r) is a section of the Tennessee Valley Authority Act (there are similar sections in other Acts). It provides that owners of patents infringed by the TVA may sue in United States District Courts for recovery of reasonable compensation; provided, however:

> "* * * that the benefits of this section shall not apply to any * * * art [process], discovered or invented by such employee during the time of his employment with the [TVA] Corporation or with the Government of the United States."

The situation could easily arise wherein a chemist discovers and actually successfully performs a new process which makes a novel compound while employed by the Government. Say he even postulates that the compound made by the process is an excellent fertilizer, but neither he nor his coworkers test the utility of that compound for such purpose until after he leaves the employ of the Government. If he later tests and proves

the postulated utility, applies for and obtains a patent with claims to the process, and the TVA uses the claimed process to make the compound, could he not successfully sue the TVA for infringement under the above Act? Under the theory proposed by Petitioner it is submitted he could, because the invention claimed in his patent would not have been "invented", i.e., completed by actual reduction to practice, until after termination of his employment.

The Atomic Energy Act:

Section 152 (42 USC 2182) of the Atomic Energy Act [and similarly Section 305 (42 USC 2457) of the National Aeronautics and Space Act] deals with the ownership of inventions made or conceived under any contract, subcontract, agreement or other relationship with the Atomic Energy Commission. The Board of Patent Interferences is authorized to follow the rules and procedures established for interference cases in determining whether the invention was made or conceived under any relationship with the AEC and NASA.

Suppose a chemist conceives of a new process for making a novel compound while under contract with the AEC, and actually successfully performs the process, but does not know of a use for the resultant compound or does not actually test the compound for any use until after his contract has been terminated. Who would own any patent on the process which the chemist later applied for, where the utility of the compound was not determined until after such contract termination? Petitioner's theory of what the law ought be would give the AEC and NASA no rights in the patent.

Infringement Problems:

Here Manson actually performed the claimed process before the filing date of the Ringold patent. In the event the decision of the Court below is reversed [in effect affirming the decision of the Patent Office Board of Appeals not to declare an interference with the Ringold patent] the patentee Ringold ought have the right to keep all others from practicing the process defined by his patent claims. But how can Ringold keep Manson from repeating exactly what Manson had done before Ringold made his invention? The perfect defense to any infringement action has always been that the alleged infringer is only doing what he did before the patentee made his invention.

It appears adopting Petitioner's position would result in a confusing change in the law that would not benefit the public in any way, but would seriously impair the progress of science and the useful arts, by shrouding new processes in secrecy.

CONCLUSION

Should this Court decide it has jurisdiction to review this case, then for the reasons stated, the judgment of the Court of Customs and Patent Appeals should be affirmed.

Respectfully submitted,

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October 1965

APPENDIX TO RESPONDENT'S BRIEF

I. Statutes And Rules Involved

28 U.S.C. 1254. "Courts of appeals; certiorari; appeal; certified questions" reads:

> "Cases in the courts of appeals may be reviewed by the Supreme Court by the following methods:
>
> (1) By writ of certiorari granted upon the petition of any party to any civil or criminal case, before or after rendition of judgment or decree;" . . .

28 U.S.C. 1255. "Court of Claims; certiorari; certified questions" reads:

> "Cases in the Court of Claims may be reviewed by the Supreme Court by the following methods:
>
> (1) By writ of certiorari granted on petition of the United States or the claimant;" . . .

28 U.S.C. 1256. "Court of Customs and Patent Appeals; certiorari" reads:

> "Cases in the Court of Customs and Patent Appeals may be reviewed by the Supreme Court by writ of certiorari."

28 U.S.C. 1257. "State courts; appeal; certiorari" reads:

> "Final judgments or decrees rendered by the highest court of a State in which a decision could be had, may be reviewed by the Supreme Court as follows:"
>
> * * *
>
> "(3) By writ of certiorari, where the validity of a treaty or statute of the United States is drawn in question or where the validity of a State statute is drawn in question on the ground of its being repugnant to the Constitution, treaties or laws of the United States, or where any title, right, privilege or immunity

is specially set up or claimed under the Constitution, treaties or statutes of, or commission held or authority exercised under, the United States."

28 U.S.C. 2601. "*Appeals from Customs Court decisions*" reads:

"Any party to a proceeding before the Customs Court who is dissatisfied with the decision of such court as to the construction of the law and the facts respecting the classification of imported merchandise and the rate of duty imposed thereon under such classification, or with any other appealable decision of such court, may, not later than sixty days after the entry of the decision, apply to the Court of Customs and Patent Appeals for a review of all questions of law and fact. In cases arising in the Territories and Possessions ninety days shall be allowed for making such application.

The application shall be made by filing in the office of the clerk of the Court of Customs and Patent Appeals a concise statement of errors of law and fact complained of; and a copy of such statement shall be served on the collector, or on the importer, owner, consignee, or agent, as the case may be. Thereupon the Court of Customs and Patent Appeals shall immediately order the Customs Court to transmit the record and the evidence taken, together with a certified statement of the facts involved in the case and the decision thereon; and all the evidence taken by and before the Customs Court shall be competent evidence before the Court of Customs and Patent Appeals. The decision of the Court of Customs and Patent Appeals shall be final unless set aside or modified by the Supreme Court, and the case shall be remanded to the Customs Court for further proceedings to be taken in pursuance of such decision."

35 U.S.C. 134, "Appeal to the Board of Appeals" reads:

> "An applicant for a patent, any of whose claims has been twice rejected, may appeal from the decision of the primary examiner to the Board of Appeals, having once paid the fee for such appeal."

35 U.S.C. 141, "Appeal to Court of Customs and Patent Appeals" provides in pertinent part:

> "An applicant dissatisfied with the decision of the Board of Appeals may appeal to the United States Court of Customs and Patent Appeals, . . ." . . .

35 U.S.C. 144, "Decision on Appeal" reads:

> "The United States Court of Customs and Patent Appeals, on petition, shall hear and determine such appeal on the evidence produced before the Patent Office, and the decision shall be confined to the points set forth in the reasons of appeal. Upon its determination the court shall return to the Commissioner a certificate of its proceedings and decision, which shall be entered of record in the Patent Office and govern the further proceedings in the case."

Amended Patent Office Rule 204(b) and (c), 37 C.F.R. 1, 204(b) and (c). By notice published in 29 F.R. 15 866, 15 867, November 26, 1964, Patent Rule 204 was amended, the amended rules to take effect January 1, 1965 and apply to interferences proposed for declaration after that date. The notice read:

"Section 1.20(b) of Title 37 C.F.R. (Patent Rule 204) is amended and new paragraph (c) is added, as follows:

1.204. Interference with a patent; affidavit by junior party.

(b) When the effective filing date of an applicant is three months or less subsequent to the effective filing date of a patentee, the applicant, before the inter-

ference will be declared, shall file an affidavit that he made the invention in controversy in this country before the effective filing date of the patentee, or that his acts in this country with respect to the invention were sufficient to establish priority of invention relative to the effective date of the patentee.

(c) When the effective filing date of an applicant is more than three months subsequent to the effective filing date of the patentee, the applicant, before the interference will be declared, shall file two copies of affidavits by himself and by one or more corroborating witnesses, supported by documentary evidence if available, setting out a factual description of acts and circumstances which would prima facie entitle him to an award of priority relative to the effective filing date of the patentee, and accompanied by an explanation of the basis on which he believes that the facts set forth would overcome the effective filing date of the patentee. Upon a showing of sufficient cause, an affidavit on information and belief as to the expected testimony of a witness whose testimony is necessary to overcome the filing date of the patentee may be accepted in lieu of an affidavit by such witness. If the examiner finds the case to be otherwise in condition for the declaration of an interference he will consider this material only to the extent of determining whether a date prior to the effective filing date of the patentee is alleged, and if so, the interference will be declared."

Rule 131 of the Rules of Practice of the United States Patent Office in Patent Cases [37 C.R.F. Section 1.131] reads:

"131. Affidavit of prior invention to overcome cited patent or publication. (a) When any claim of an application is rejected on reference to a domestic patent which substantially shows or describes but does not

claim the rejected invention, or on reference to a foreign patent or to a printed publication, and the applicant shall make oath to facts showing a completion of the invention in this country before the filing date of the application on which the domestic patent issued, or before the date of the foreign patent, or before the date of the printed publication, then the patent or publication cited shall not bar the grant of a patent to the applicant, unless the date of such patent or printed publication be more than one year prior to the date on which the application was filed in this country.

(b) The showing of facts shall be such, in character and weight, as to establish reduction to practice prior to the effective date of the reference, or conception of the invention prior to the effective date of the reference coupled with due diligence from said date to a subsequent reduction to practice or to the filing of the application. Original exhibits of drawings or records, or photocopies thereof, must accompany and form part of the affidavit or their absence satisfactorily explained."

II. The Separate Entities Within The Patent Office

The staff of the Patent Office is provided for and assigned duties by statute.

35 U.S.C. 3, which provides for a Commissioner of Patents, three assistant commissioners and nine examiners-in-chief, reads:

"A Commissioner of Patents, one first assistant commissioner, two assistant commissioners, and nine examiners-in-chief, shall be appointed by the President, by and with the advice and consent of the Senate."

35 U.S.C. 7, which provides for the "Board of Appeals," and also refers to "Primary Examiners," reads:

"The examiners-in-chief shall be persons of competent legal knowledge and scientific ability. The Commis-

sioner, the assistant commissioners, and the examiners-in-chief shall constitute a Board of Appeals, which, on written appeal of the applicant, shall review adverse decisions of examiners upon applications for patents. Each appeal shall be heard by at least three members of the Board of Appeals, the members hearing such appeal to be designated by the Commissioner. The Board of Appeals has sole power to grant rehearings.

Whenever the Commissioner considers it necessary to maintain the work of the Board of Appeals current, he may designate any patent examiner of the primary examiner grade or higher, having the requisite ability, to serve as examiner-in-chief for periods not exceeding six months each. An examiner so designated shall be qualified to act as a member of the Board of Appeals. Not more than one such primary examiner shall be a member of the Board of Appeals hearing an appeal."

35 U.S.C. 135, which provides for a board of patent interferences (consisting of three examiners of interferences), reads in pertinent part:

"Whenever an application is made for a patent which, in the opinion of the Commissioner, would interfere with . . . any unexpired patent, he shall give notice thereof to the . . . applicant and patentee . . . . The question of priority of invention shall be determined by a board of patent interferences (consisting of three examiners of interferences) whose decision, if adverse to the claim of an applicant, shall constitute the final refusal by the Patent Office of the claims involved, and the Commissioner may issue a patent to the applicant who is adjudged the prior inventor." . . .

As is evident from the above, while the Commissioner may appoint the various examiners, the examiners of interferences have a different legal status and remain separate and distinct from the primary examiners.

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IN THE

Supreme Court of the United States

OCTOBER TERM, 1965

No. 58

EDWARD J. BRENNER, COMMISSIONER OF PATENTS,
Petitioner,

v.

ANDREW JOHN MANSON, *Respondent.*

BRIEF, AMICUS CURIAE, FOR THE AMERICAN PATENT LAW ASSOCIATION IN SUPPORT OF THE RESPONDENT

AUTHORITY TO FILE

This *amicus* brief is presented to the Court under Rule 42(2). The letters of consent from petitioner and respondent are on file with the Clerk of the Court. Copies are included as Appendices F and G.

INTEREST OF THE AMERICAN PATENT LAW ASSOCIATION

The American Patent Law Association is an association of approximately 2800 members of the bars of many states interested in the laws relating to patents and allied subjects. This number represents approxi-

mately half of the patent lawyers in the country. We are vitally concerned that the patent law be applied in the public interest. We respectfully submit our views as a possible aid to this Court in deciding the important substantive issues raised by the present case.

However, we take no position and express no views as to the jurisdictional question presented by the Government's petition and brief.

We are especially moved to file this brief because this is the first case coming to this Court from the "patent side" of the United States Court of Customs and Patent Appeals.*

We have no concern with, and express no views on, the private interests of the respondent in this case.

THRESHOLD QUESTION OF IMPROVIDENT GRANT OF THE WRIT

At the outset we raise the question of improvident grant of the writ. The substantive question as presented in the petitioner's brief differs from the substantive question as presented in the petition. Besides differing from each other, both differ from what the majority opinion in the court below characterized as the "single legal issue" (R. 63). So that the differences may be readily compared, the three are set forth below in side-by-side relations as follows:

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* The United States Court of Customs and Patent Appeals (originally the United States Court of Customs Appeals) acquired by the Act of March 2, 1929 (Public—No. 914—70th Congress) both its present name and its jurisdiction over appeals in patent and trademark cases formerly vested in the then Court of Appeals of the District of Columbia.

(a)	(b)	(c)
[From the Government's Petition (p. 2)] Whether a process which produces a useless product is patentable.	[From the Government's Brief (p. 2)] Whether a process is "useful" within the meaning of the Patent Act (and hence patentable) merely because it operates to produce a product without any known specific utility.	[From the majority opinion in the C.C.P.A. (R. 63)] The single legal issue presented by this appeal is whether an applicant for a patent on a *new process* for making a *known compound* must establish a utility for such *compound*, in order to satisfy the requirements of Rule 204(b) preparatory to having an interference declared between his application and a prior patent. [Emphasis in the original]

This Court has not hesitated in the past to dismiss the writ as improvidently granted (*U.S.* v. *Rimer,* 220 U.S. 547 (1911); *Furness, Withy & Co.* v. *Yang-Tsze Ins. Assoc.,* 242 U.S. 430 (1917); *Layne & Bowler Corp.* v. *Western Well Works, Inc.,* 261 U.S. 387 (1923); *Keller* v. *Adams-Campbell Co., Inc.,* 264 U.S. 314 (1924); and *Rice* v. *Sioux City Memorial Park Cemetery,* 349 U.S. 70 (1955)) if, as the case develops, it appears that the original view as to its importance was erroneous—even where, as here, the Government is the petitioner (*Rimer*), or where the Court was initially "mistaken in assuming that an important issue under general patent law was involved" (*Keller*); and even after previous argument and decision by the Court (*Rice*). See also *General Talking Pictures Corp.* v. *Western Electric Co.,* 304 U.S. 175, 179 (1938):

> "Petitioner is not here entitled to decision on any question other than those formally presented by its petition for the writ."

We are not unmindful of Rules 23(1)(c) and 40(d)(2), but it is suggested that a subsidiary question "fairly comprised" within the question *actually* pre-

sented may become so narrow as to call for the application of the doctrine of the cases cited above.

The difference in scope between the "useless product" of question (a) and the "product without any known specific utility" of question (b) is very significant, and might well bring into operation the doctrine of *Rimer* and *Keller*. In any event, questions (a) and (b) are markedly different from, and broader than, the issue said by the majority of the court below to be the "single legal issue".

Moreover, as will be pointed out in greater detail hereinafter, the petitioner's brief (p. 5) concedes that the Ringold and Rosenkranz publication (R. 59-61) indicates a use for the relatively small class of organic chemical compounds, technically known as 2-methyl-dihydrotesterones, of which the products of the process involved herein are members. Since that publication is dated "November 1956" (R. 59) which is slightly over a year earlier than the patentee's filing date (R. 57) and even slightly earlier than the patentee's Mexican Convention date of December 17, 1956 (R. 57), it follows that, under the doctrine of *Carnegie Steel Co.* v. *Cambria Iron Co.,* 185 U.S. 403 (1902),* the respondent was entitled to rely upon that earlier disclosure of utility to satisfy even the most stringent requirements of the Government under 35 U.S.C. § 101. It follows for this additional reason that this Court may well conclude that the writ was improvidently granted.

Nevertheless, the Association wishes to present its views as to each of questions (a) and (b) as of possible interest to the Court.

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* "That which is common and well known is as if it were written out in the patent . . . ." [p. 437]

ARGUMENT RE UTILITY

The substantive issue set forth in the second question presented on page 2 of the Commissioner's petition is as follows:

> "2. Whether a process which produces a useless product is patentable."

That question squarely presents for decision just what is meant by the adjective "useful" in 35 U.S.C. § 101.

The position of *amicus* is that the adjective "useful" has a very broad meaning, broad enough to include within its scope the present factual situation where the petitioner admits that the process defined by respondent's process claims is adequately disclosed, even though, *arguendo,* the product is assumed to be useless.

We say *arguendo* advisedly, because it seems that the real issue* involved in this case is not as stated in the petition. Reference to the printed "Brief for the Commissioner of Patents" in the court below reveals the following statements relative to the issue presented to that court *by the Patent Office:*

> "Hence, the sole issue before this Court [of Customs and Patent Appeals] in this appeal is whether the finding of insufficiency under the facts of this case, was or was not proper." [page 4]
>
> "The decision of the Board [of Appeals in the Patent Office] indicates that the issue presented

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* A review of the record shows that the substantive issue as framed in the Government's petition to this Court made its appearance *for the first time* in the second paragraph of the *dissenting* opinion by Chief Judge Worley in the court below. See 333 F. 2d at 239. (R. 71)

is whether the affidavits are sufficient with respect to the showing relative to the utility of the compounds produced by the process of claims . . ." [page 5]

"It is submitted that the sole issue is whether the affidavit filed Aug. 7, 1962 . . . under [Patent Office] Rule 204(b) eliminates the deficiency of the prior affidavits, and whether the decision of this Court in *In re Dickinson et al,* 133 USPQ 39 [299 F. 2d 954 (1962)] is controlling on that issue." [page 5]

It thus rather clearly appears that the case reaches this Court on a substantive issue different from, and broader than, the issue or theory on which it was presented below.

Moreover, that issue seems to be framed in the form of a "loaded" question. It assumes that which is by no means conceded, namely, that a chemical compound is useless, or as it is perhaps more frequently expressed in patent jargon, "has no utility". It is of course conceded that many compounds have no *commercial* utility, but that is not equivalent to saying that they have no utility *within the meaning of the patent law.*

The case of *aluminum* may be cited as somewhat in point. Aluminum was known as a substantially pure metal for some decades prior to Hall's discovery of the electrolytic method employing molten cryolite as electrolyte for recovering the metal from bauxite in a really practicable manner. Prior to Hall's discovery aluminum was hardly more than a laboratory curiosity, obtainable only at such expense and with so much difficulty that its cost was comparable to that of the

precious metals. This Court may take judicial notice* of the more recent role of aluminum on a large scale in machines, building construction, packaging, aircraft, etc. etc.

The petition for the writ also attempts to raise the spectre of "patent monopolies" or "monopoly" (page 10 of the petition) *although no such issue was presented by the Patent Office to the court below.*

This apparent preoccupation with the phantom issue of monopoly** purports to be supported by or based in part on the following reasoning in the petition for the writ (page 10):

> "The development of a process for making a useless product adds nothing to the sum of useful knowledge. *All that it does is, first, to enable the developer to block further research into the use of the product or to confine it to those whom he authorizes* . . . [Emphasis added]

The italicized portion is respectfully submitted to be completely wrong as a matter of law. This Court at

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* *Werk et al* v. *Parker et al,* 249 U.S. 130 (1919), and cases there cited.

** As to whether and to what extent a patent is a monopoly, see the illuminating article by Giles S. Rich (now Associate Judge of the United States Court of Customs and Patent Appeals) entitled "The Relation Between Patent Practices and the Anti-Monopoly Laws": in 24 Jour. Pat. Off. Soc., 85-106 and 159-181 (1942). See also Judge Giles Rich's Kettering Award Address of 1964, entitled "The Vague Concept of 'Invention' as Replaced by Sec. 103 of the 1952 Patent Act", reproduced as Appendix A to the University of Texas Law School's Brief Amicus Curiae in Support of 35 USC 103, in the case of William T. Graham and Graham Plow Inc. v. John Deere Company of Kansas City and Deere & Company, No. 11 now pending in this Court. Pages 3a-5a are of especial interest.

least as early as 1876, in *Merrill* v. *Youmans,* 94 U.S. 568, 574, made it crystal clear that a *process* claim in a patent covers the process only, and gives no protection to the resulting product.

It is therefore inaccurate to say that a patent on the *process* could enable the patentee to "block further research into the use of the *product*". Or, as stated elsewhere in the petition (p. 11):

> "The rule adopted by the court below necessarily closes the door to *experimentation* with the same or similar processes by persons other than the patentee or those he authorizes" [Emphasis added]

Although experimental use coupled with commercial activity may constitute infringement (*Spray Refrigeration Co., Inc.* v. *Sea Spray Fishing, Inc.,* 322 F. 2d 34 (CA 9, 1963)), the weight of authority is that experimental use alone does not constitute infringement. This has been held as recently as 1958 (*Chesterfield* v. *U. S.,* 159 F. Supp. 371 (Ct. Cls., 1958)) and as far back as 1813—see Circuit Justice Story's opinions in *Whittemore* v. *Cutter,* F.C. No. 17,600 (C.C.D. Mass., 1813) and in *Sawin et al.* v. *Guild,* F.C. No. 12,391 (C.C.D. Mass., 1813). *Poppenhusen* v. *Falke et al.,* F.C. No. 11,279 (C.C.S.D. N.Y., 1861), and *Kaz Mfg. Co., Inc.* v. *Chesebrough-Ponds, Inc.,* 317 F. 2d 679 (CA 2, 1963), are also of interest, as well as 69 *Corpus Juris Secundum,* pp. 845-6 and 849.

To return to the broad question of usefulness or utility in the law of patents, this has been obscured, so far as the decided cases are concerned, by a recurrent looseness of language from which it appears upon study that what the court really meant by usefulness

or utility was something quite different from the issue with which we are concerned in the present case. Thus, in the very early cases in the lower Federal courts where usefulness or utility is referred to in any real depth, the context* makes it clear that what was really under discussion was what we today would call operativeness**, or degree of novelty over the prior art, or commercial success or acceptation, or practicality.*** The same thing, strangely enough, seems to be true of previous opinions of this Court. Before citing the prior cases in this Court where usefulness or utility is discussed in a more than passing manner, attention is invited to Appendix A where, for convenience, the Constitutional provision (Article I, Section 8, Clause 8) as well as all of the pertinent statutory language (from the first Patent Act of April 10, 1790 down to the present Act) is collected. This appendix shows that the statutory language involved in this case has not changed significantly from 1787 down to the present language of 35 USC § 101.****

The earliest detailed discussion of utility or usefulness to be found in the U. S. Supreme Court reports

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* The most important of those found in the old Federal Cases are collected and excerpted in Appendix B.

** A good example of such a case is *Ex parte De Bausset,* 1888 C.D. 66, a decision by Commissioner Hall.

*** A particularly apperceptive approach in a case of this kind involving the idea of preventing canals from being closed over by ice in the wintertime by heating them with steam pipes, is represented by Commissioner Fisher's opinion in *Ex parte Robert A. Chesebrough,* 1869 C.D. 18, which is likewise remarkable for its brevity.

**** In his "Commentary on the New Patent Act", 35 U.S.C.A. 1 at 36, Mr. P. J. Federico pointed out that "[u]sefulness, usually referred to as utility, is a requirement under section 101."

is found in the Appendix of 3 Wheat. (16 U.S.) for the February 1818 term, beginning at page 13 and extending to page 29.* This takes the form of a Note on the Patent Laws by Justice Story.** Justice Story first discussed English law, and at page 16 observed that,

> "7. The invention must not only be new, but useful; for if it be contrary to law, or mischievous, or hurtful to trade, or generally inconvenient, it is, by the terms of the statute, void. 3 Inst. 184."

Later, on page 24, in discussing American law on the subject Justice Story noted that,

> "By *useful* invention, in the patent act, is meant an invention which may be applied to a beneficial use in society, in contradistinction to an invention injurious to the morals, health, or good order of society, or frivolous and insignificant. Bedford v. Hunt, 1 Mason's R. Lowell v. Lewis, 1 Mason's R. It is not necessary to establish that it is in all cases superior to the modes now in use for the same purpose."

With Justice Story's comments as a starting point, we may then proceed to the following cases decided by this Court where usefulness or utility is referred to in a more than casual or passing manner:

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* Now reproduced in *Deller's Walker on Patents,* Second Edition, 1964, Vol. 1, pages 574-589.

** In a brief biographical note appearing at 30 Fed. Cas., page 1395, Justice Story is said to have "had great influence upon the development of American admiralty, prize and patent law." On the scholarly attributes of Justice Story in general, see the "Proceedings of Court Had Upon the Death of Judge Story" at 11 L. Ed. (4 How.) 846-7, and the somewhat lengthier memorial notice at 30 Fed. Cas., pages 1335-41.

Seymour v. *Osborne,* 11 Wall. (78 U.S.) 516 (1870), Reaping machine.

Densmore v. *Scofield,* 102 U.S. 375 (1880). Oil-tank car for carrying petroleum and other like substances in bulk.

McClain v. *Ortmayer,* 141 U.S. 419 (1891). Pad for horse-collars.

Gandy v. *Main Belting Company,* 143 U.S. 587 (1892). Belt or band for driving machinery.

Grant v. *Walter,* 148 U.S. 547 (1893). Reeling and winding silk and other thread.

DuBois v. *Kirk,* 158 U.S. 58 (1895). Movable dams.

Diamond Rubber Company v. *Consolidated Rubber Tire Company,* 220 U.S. 428 (1911). Rubber tires for vehicle-wheels.

Beidler v. *U.S.,* 253 U.S. 447 (1920). Photographing and developing apparatus.

Corona Cord Tire Company v. *Dovan Chemical Corporation,* 276 U.S. 358 (1928). Vulcanization of rubber.

Excerpts from these Supreme Court cases are collected in Appendix C to this brief.

Reference may also be made in passing to an interesting article by Judge Giles S. Rich entitled "Principles of Patentability", 28 Geo. Wash. L. Rev. 393-407 (1960), especially pp. 399-400.

Since so far as we can discover in the prior decisions of this Court there is no direct authority on the broad issue presented by this case, it follows that in in-

terpreting the intent of the framers of the Constitution and of the first and succeeding patent statutes this Court is free to decide the question in accordance with the broadest possible public policy.

The Government's petition takes the position that "[t]he development of a process for making a useless product adds nothing to the sum of useful knowledge." This seemingly presupposes some justification for thinking that the founding fathers of our country intended to place the acquisition of useful knowledge, i.e., useful *scientifically,* beyond the pale of the useful arts. But the question may be asked, why should "useful" in this context *exclude* that which increases our knowledge of science* and include *only* that from which one may possibly realize some financial return some time in the near future? Such a narrow and forced construction of the term "useful" seems hardly consonant with the tremendous sums expended by the Federal government** nowadays to foster research and discovery, both pure and applied.

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* As a matter of fact, even reports of negative results (e.g., of activity in the steriod field) are important. A new compound intended to be immediately screened with the idea of "blocking" blind leads as rapidly as possible so as to enable researchers to proceed with other and more fruitful leads is useful. Therefore, an economical and feasible method for the production of compounds for research purposes is assuredly a "useful art".

** In the lead article of a recent (July, 1965) issue of *Scientific American,* entitled "The Support of Science in the U.S.", pages 19 et seq., by Dael Wolfle, shown on page 16 to be executive officer of the American Association for the Advancement of Science and publisher of the association's official magazine *Science,* we find the following significant passages:

> "This year in the U. S. nearly $21 billion—3.2 percent of the gross national product—will be spent for research and develop-

Moreover, considering the question on a historical basis, can anyone familiar with the life and works of Benjamin Franklin,* the elder statesman of the Constitutional Convention, that amazing inventive genius and pioneer scientist of our Colonial period who, like

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ment. Some two-thirds of the funds will be supplied by the Federal Government." [p. 19]

"Meanwhile the economy of the country has gained enormously from the upsurge in technological research and development. In 1953 research and development accounted for 11 percent of all industrial investment; in 1962 research and development absorbed about 25 percent." [p. 20]

"In the 12 years from 1953 to 1965 every major source of research and development funds increased its support substantially. Federal funds are five times what they were in 1953. Industrial support has tripled, and the universities have done almost as well. The other nonprofit institutions are contributing six times their 1953 amount." [p. 21]

In a book review in *Science* for 25 June 1965, at p. 1707, we find a [Swedish] sociologist beginning his review by stating as follows:

"The Soviet Union openly and repeatedly proclaims that its goal is to become the world leader in all key branches of basic and applied research. China has the same goal. Each of them aims to displace the United States from what one Congressman recently called its 'unquestioned world leadership' in scientific and technological research. Both the Soviet Union and China are cheering themselves on in this research race with the Marxist dictum that the capitalist nature of society in the United States will throttle the growth of its science and technology."

* "His [Franklin's] faith in scientific progress never wavered. When confronted with skepticism about the utility of the lighter-than-air balloon flown in Paris in 1783, he replied 'Of what use is a new-born babe?' " Quoted from Ralph L. Ketcham, "Benjamin Franklin", page 110 (The Great American Thinkers Series, Washington Square Press, 1965). And see Edwin Hubble, "The Nature of Science", Huntingdon Library, 1954, page 27, where a similar allusion is given, together with Faraday's famous reply to a broadly similar question: "Some day you may be able to tax it."

the fabled Prometheus of old, called down the very lightnings from the heavens—that thinker who devoted much of a long and fruitful lifetime to what we today would call scientific research; can anyone *seriously* believe that such a man would countenance for one moment any interpretation of the patent statutes that would tend in the slightest way to discourage man in his ceaseless search for knowledge that will enable him to push back the frontiers between him and the still undiscovered mysteries of nature?

The petition for the writ suggests that the problem is of especial importance in the drug industry. It is said that one who has invented nothing useful should not be put in the position to discourage, if not control,* segments of important areas of medical or pharmaceutical research. This ignores the basic facts of industrial life. Patents, whether valid or invalid, do not discourage research—indeed, by their very nature they cannot! By their disclosures they effectively *promote* research. In view of the tremendous mushrooming of research in recent decades, especially in the very field emphasized in the petition, only a Rip van Winkle could suppose that the issuance of patents had done anything to restrain the tempo of such research.** The issuance of a patent for process A for the production of a given compound acts through its potential restraint as a deciding incentive to competi-

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* The petitioner does not enlighten us as to how the owner of a patent on something that is not useful could possibly *discourage* any area of research, let alone control it! Besides, that is not the question here in any event for a patent *already* exists on the process—the only question is whether the invention was first made by respondent rather than by Ringold and Rosenkranz (R. 57).

** Cf. the statistics given by Dael Wolfe, supra.

tors of the patent owner to engage in independent research to develop rival or equivalent processes B, C, D, etc. to achieve the same or similar—and sometimes even superior—results, with the consequent overall enrichment of the sum total of man's knowledge of nature—and incidentally increasing competition and decreasing the possibility of "monopoly". We thus see that the Government's fear is really only a figment of the imagination. The supposed "injury to the public welfare" (petition, page 11) never materializes; the net result is quite the contrary.

At this point it would not be amiss to mention the admonition by this Court in *Mazer* v. *Stein,* 347 U.S. 201 (1954):

> "The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in 'Science and useful Arts'. Sacrificial days devoted to such creative activities deserve rewards commensurate with the services rendered." [p. 219]

The petition points out (bottom of page 10) that "[f]requently processes for producing complex compounds are developed even though the compound has no known use". This would certainly seem to be a very good thing. Such practice thereby makes available to other chemical researchers an even wider array of compounds available for screening and testing for new uses not remotely envisaged by the chemist who developed the initial process in question. It, in effect, provides still another "tool" that might prove useful

to (say) a clinician groping about to find a remedy for one of the diseases that afflict mankind. It is of course axiomatic that a clinician cannot try out a compound that is not available to him.

The petition states (top of page 11) that "[s]ubsequent experimentation may show that the compound is a very valuable drug." All well and good. In that case, the subsequent experimenter would have it within his power to apply for and possibly obtain a patent covering his later-discovered process for the therapeutic use or for the novel therapeutic composition containing it. But this would be a second and independent invention.

Since the Government's petition particularly emphasized the importance of the problem involved in this case "in the drug industry" (petition, page 10), it is suggested that an address of several years ago entitled "Patents and the Conquest of Disease", by John T. Connor, then President of Merck & Co., Inc. and now Secretary of Commerce, is of transcendent importance and may prove to be of interest to the Court. This is regarded as of sufficient interest to justify incorporating it as Appendix D to this brief for the possibly greater convenience of the Court, since extracting excerpts from it would not impart its true flavor or do it full justice. For like reasons, we have incorporated as Appendix E a recent statement by Walter A. Munns, President of Smith Kline & French Laboratories, before the Senate Subcommittee on Patents, Trademarks, and Copyrights.

Many years ago, while on circuit, Justice Story said that "[t]he doctrine of patents may truly be said

to constitute the metaphysics* of the law." *Barrett et al.* v. *Hall et al.*, Fed. Case No. 1047 (C.C. Mass., 1818). Metaphysics or not, there is no need or excuse for so construing the patent law—at least in the absence of a clearly expressed Congressional intent to the contrary—in such fashion as to remove the incentive to develop *and promptly disclose* new processes for producing products, without necessarily waiting for the products to be tested.**

What stranger contrast in attitudes could we have than, on the one hand, the expenditures of tremendous sums of money by certain departments of the Federal Government to enable us to be the first to achieve the technical feat of placing a man on the moon, and on the other hand, the efforts of the Government in espousing an interpretation as strict as possible on the otherwise broad term "useful" in the Constitution and the patent statutes so as necessarily to *discourage* rather than encourage the expenditure of time and money on scientific and industrial research and development?

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* And to the same effect more recently, see Dr. Nathan Reingold, Science Bibliographer in the Science and Technology Division of the Library of Congress, in *Technology and Culture*, Vol. I, No. 2, page 166 (Spring, 1960).

** Note here the incentive for *prompt* disclosure to the public. Why should the inventor of the *process* be required to make a *second* invention (some particular use for the product of the process) before being regarded as entitled to secure a patent on his *first* invention? This would only lead to more delay in disclosing the invention to the public, which *per se* is undesirable. After all, one must not lose sight of the fact that the inherent nature of a *process* is that it produces a *product*. This is the *only possible utility* that any process can have. A process is therefore in and of itself *necessarily* useful within the meaning of 35 U.S.C. § 101.

What the Patent Office has for some time been attempting to do, and is still doing,* as should be clear from a comparison of the Government's position here with the prior case law reviewed in Appendices B and C, is to *change* the law on utility with respect to patents on process inventions. There is no clear or valid reason for such a change in policy, and the Court of Customs and Patent Appeals very properly refused to sanction it.

THE QUESTION OF UTILITY AS PRESENTED IN PETITIONER'S BRIEF AS DISTINGUISHED FROM THE PETITION

In the Government's *petition* a "useless product" is referred to in the question presented (p. 2). In the Government's *brief,* however, the product is referred to in the question presented (p. 2) as "a product without any known specific utility". As pointed out earlier in this brief, there is a wide difference in scope between these two questions, thereby fully justifying this Court in concluding that the writ was improvidently granted.

Apart from that, however, this *amicus* respectfully submits that the record wholly fails to support the Government's contention that the product of the process was "without any known specific utility".

The Government's brief admits (p. 5) that the November 1956 publication by Ringold and Rosenkranz

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* In *Ex parte Joly et al.,* Appeal No. 7472, argued before the Court of Customs and Patent Appeals on October 8, 1965, the Patent Office Board of Appeals expressly refused to follow the decisions of the Court of Customs and Patent Appeals, its statutory appellate court (cf. 28 U.S.C. § 1542 and 35 U.S.C. §§ 141-4), on the issue of process claim utility, and on that point is making essentially the same contentions as it is making in the present case.

(R. 59-61) indicates a use for the small class of 2-methyl-dihydrotesterones. The 2α, 17α-dimethyl derivative of the respondent's rejected process claim 2 (R. 62) is a member of that small class. In rejected process claim 3 the 17-substituent is "lower alkyl" which of course includes the one-carbon-atom methyl group (R. 5, last paragraph). The 2α,17α-dimethyl-androstan-17β-ol-3-one of rejected claim 2 (R. 62) is shown structurally at R. 60, right column, second structural formula, when the IIb substitutions are made, i.e., Me (methyl) for R, and H (hydrogen) for R′. See R. 60, left column, last compound specifically named in the first full paragraph. At R. 61, left column, first full paragraph, Ringold and Rosenkranz suggest a definite use as a part of the published prior art available not only over 3 years before respondent filed (R. 3) but even more than 12 months before Ringold and Rosenkranz filed (R. 57). Respondent is fully entitled to rely upon that prior art indication of use as a tumor inhibitor (to paraphrase slightly the petitioner's brief at page 5) in view of this Court's holding in *Carnegie Steel Co.* v. *Cambria Iron Co.,* supra.

The fact that the Ringold and Rosenkranz article suggests (R. 61) that the program of screening for anti-tumor effectiveness was still in progress at the time of publication of the article is immaterial. Any objection to that, if objection there be, was very fully answered by this Court long ago in *The Telephone Cases,* 126 U.S. 1 at 535-7 (1888).

"THE SINGLE LEGAL ISSUE" REFERRED TO IN THE MAJORITY OPINION OF THE C.C.P.A.

That issue (R. 63) is a very specific one obviously quite different from either of the two "questions presented" by the Government in its petition and brief respectively. Probably little should be said here concerning it, in view of the present posture of the case.

Suffice it to say that the real issue is not whether a patent should be granted on the process in question —one has already been granted to Ringold and Rosenkranz—but is whether Ringold and Rosenkranz are or respondent Manson is entitled to be recognized as the first inventor(s). But the patent statute entrusts the determination of *that* issue (priority of invention) to a different tribunal in the Patent Office, namely, the Board of Patent Interferences (35 U.S.C. § 135). Here, the proceedings were *ex parte* before the Primary Examiner and the Board of Appeals (35 U.S.C. § 134). As is well recognized (cf. *In re Nelson et al.*, 280 F. 2d 172, 187 (1960)), different policy considerations may be involved in *ex parte* and *inter partes* cases. In the former a pure question of patentability under the statute is involved; in the latter it is the question of which of two rival inventors has the paramount right to a patent on an invention that has already been determined by the Patent Office to be a patentable one. All that respondent is required to do *ex parte* to qualify for the requested interference is to establish *prima facie* his right to an award of priority, under Patent Office Rule 204(b) reproduced at p. 4 of petitioner's brief. This he has done by means of the five affidavits submitted under that rule (R. 9, R. 10-18, R. 33, R. 46 and R. 47-48). The interference should

be declared with the Board of Patent Interferences then determining the issue of priority of invention in the customary manner. See *In re Dickinson et al.,* 299 F. 2d 954 (1962).

COMMENTS ON VARIOUS MISCELLANEOUS POINTS MENTIONED IN THE GOVERNMENT'S BRIEF

P. 18, lines 2-4—A use was in fact shown in the November 1956 Ringold and Rosenkranz article. Apart from that fact, *admitted on page 5 of the Government's brief,* the footnote reference to *Petrocarbon Ltd.* v. *Watson,* 247 F. 2d 800 (1957), at that point in the brief suggests at least one possible source of confusion. It is well recognized that the requirements as to sufficiency of disclosure under 35 U.S.C. § 101 and under 35 U.S.C. § 112 are by no means necessarily the same. *In re Folkers et al.,* 344 F. 2d 970 (May 6, 1965). *In re Krazinski et al.,* 347 F. 2d 656 (June 24, 1965). *In re Isaacs et al.,* 347 F. 2d 887 (July 1, 1965). The present case was decided in the court below by reference to 35 U.S.C. § 101 (R. 64-67), the majority opinion carefully distinguishing a 35 U.S.C. § 112 situation. (R. 68). *Petrocarbon,* on the other hand, shows on its face that it was decided on the basis of 35 U.S.C. § 112. Long ago this Court pointed out that a judicial opinion cannot be relied upon as a binding authority unless the case was such as to call for its expression. *Carroll* v. *The Lessee of Carroll et al.,* 16 How. (57 U.S.) 275 at 287 (1853).

P. 19, lines 14-19—these passages are inconsistent with the admission made by the petitioner at p. 5 of its brief, as well as contrary to what is actually taught in the November 1956 Ringold article.

P. 20, footnote 15—the apparently unfounded amplification of the definition of "science" at this point vis-a-vis copyrights— a few lines thereafter being distinquished from "useful arts" vis-a-vis patents but here modified to mean "knowledge in general"—seems wholly inconsistent with the Government's quotation from the *Great Atlantic & Pacific Tea* case about the middle of page 24 of the brief.

Pp. *20-21 footnote 16*—it could hardly be seriously suggested by the Government that even as of 1785, an instrument for fixing latitudes would lack the necessary utility to satisfy present-day 35 U.S.C. § 101. Not even a landlubber would be likely to hold such a view—especially if at the time he happened to be lost in the vast reaches of (say) the South Atlantic Ocean without instruments for navigation. The problem of fixing latitudes, and the (historically) still more difficult problem of determining longitudes, has always been of the most intensely practical kind. In "Royal Society, Its Origins and Founders", Sir Harold Hartley, Editor, 1960, the work of the 17th-century scientist, Laurence Rooke, on the problem of determining longitude at sea, is referred to at p. 116 as "of course, of vital economic importance". The problem was not satisfactorily solved until the work of John Harrison shortly after the middle of the 18th century—see Samuel Smiles, "Men of Invention and Industry", 1855, pp. 72-104, where Harrison is said to have "conferred an incalculable benefit on science and navigation, and established his claim to be regarded as one of the greatest benefactors of mankind." Smiles refers to problems involved in both latitude (pp. 83-84) and longitude determination. See also T. K. Derry & T. I. Williams, "A Short History of Technology",

Oxford University Press, 1961, pages 205, 206, 210, 211. In Beckmann's "History of Inventions", Fourth (1846) Edition, Vol. I, page 371, we are told that not many years after Philip III of Spain offered a tremendous sum as a reward to anyone who should discover the means of finding the longitude of a ship at sea, Morin about 1630 is reported to have said to the Cardinal Richelieu, "Id vero an ipsi daemoni nescio, homini autem suscipere scio esse stultissimum" ("I know not what such an undertaking would be even to the devil himself, but to man it would, undoubtedly, be the height of folly.").*

Of course, whether Michael Byrne's "new invented Instrument" was *operative* for its intended purpose would be quite another matter; one having nothing to do with whether its utility had been sufficiently indicated by its inventor, and therefore nothing to do with the present case.

As a practical matter, there is no harm in granting patents on truly useless inventions in the commercial sense. One of the beauties of the patent system is the automatic adjustment of the value of the patent monopoly to the value of the contribution. Just as one does not expect all books or plays given copyright protection to be edifying or best sellers or for all "music" protected by copyright to be either aesthetically pleasing or "hits", so may one not reasonably expect every invention to supersede all other like inventions. It is enough if it is not frivolous, immoral or mischievous, which is the old reliable test suggested by Justice Story.

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* One wonders whether official attitudes toward innovation have changed much in three hundred years.

It is *not each individual invention* that must be capable of promoting progress in an art to be patentable—any more than in copyright—but the true meaning of the Constitution is that the patent *system* is to be so devised by Congress as to carry out the intent of promoting the useful arts. This Congress has done, changing the system from time to time and, on the basis of some 175 years experience, has now *itself* stated expressly *all* of the prerequisites to patentability. "Useful" was continued in the law in the light of the Justice Story interpretation. It should not at this late date be changed so as supposedly to conform to what some theorists might feel *should* be the law.

P. 28, lines 9-14—as has been shown above, there is no basis in the record of this case for the reference to "presently useless processes". The process is useful for the only purpose to which any process can ever be put, namely, the production of a product. Moreover, the Government has not explained how a patent on a presently useless process, if such there be, can stifle progress. If there is indeed a useless process, who would use it?

P. 29, lines 1-2—Ringold's disclosures are both *prior,* not subsequent, to the filing date of respondent's *application.* What precise time relationship they bear to respondent's *actual* process can only be adequately determined during an interference proceeding under 35 U.S.C. § 135.

P. 29, last three lines—the product *does* have sufficient utility to warrant a patent on the process. Ringold and Rosenkranz already have the patent (R. 57).

P. 30, lines 16-21—how can the Patent Office or the courts realistically determine "the potential harmful economic consequences" here referred to? See the addresses by John T. Connor, President of Merck & Co. and now Secretary of Commerce, and Walter A. Munns, President of Smith Kline & French Laboratories, set forth hereinafter in Appendices D and E.

The Government's approach seems to be tantamount to saying that only *good* books, *pleasant* music, *aesthetically pleasing* pictures, and *edifying uplifting* speeches and sermons shall be subject to copyright. Justice Holmes, speaking for this Court, laid that notion to rest over 60 years ago in *Bleistein* v. *Donaldson Lithographing Company*, 188 U.S. 239, 251 (1903).

It would seem to be much safer in the case of patents to adopt the time-tested approach of Justice Story that whether the invention

> "be more or less useful is a circumstance very material to the interests of the patentee, but of no importance to the public. If it be not extensively useful, *it will silently sink into contempt and disregard.*" *Lowell* v. *Lewis,* Fed. Cas. No. 8568 (C.C.D. Mass., 1817)

P. 31, lines 7-11—the Government has not shown how a patent on a new *process* could possibly operate to "close the door to experimentation or innovation" by others with the *product*. The argument earlier in this brief has shown quite the contrary.

P. 31, lines 17-18—these two lines completely misconceive the effect and operation of a process patent. Such a patent, on the contrary, would serve to *stimulate* competitors to try to find a different route to the

product. As a practical matter, however, a patent owner having the predatory instincts seemingly suggested in the Government's petition and brief would hardly be likely to waste his time trying to foreclose his competitors from practicing a process leading to the production of a "useless" product.

P. 31, lines 19-25—there seems to be no basis in the record for this assertion. It can hardly be said that respondent is a "preferred" inventor, to date at least. Even if respondent wins the present appeal, he still must surmount the hurdle of the interference priority contest that would then ensue.

P. 32, line 10—the reference to "useless patents" seems unwarranted in view of the fact that Ringold and Rosenkranz already have a patent on the process in question.

P. 32, last five lines—the fallacy of the argument as regards foreclosing research and innovation by others in this area has already been demonstrated. The reference to Ringold as the "first inventor" seems unwarranted, since that is the very thing yet to be established—the very purpose of the attempt by respondent to provoke an interference. The Government therefore assumes that which has yet to be proven.

P. 33, lines 3-5—it is the unduly restrictive view of the function of the patent system that will the more surely stifle scientific development, innovation and competition. Encouragement, not stifling, is what is wanted. This strictly *patent* case ought not to be confused with some kind of proceeding under the antitrust laws.

P. 34, lines 5-9—the basis in the record for this statement is not apparent. All respondent has to do

is make out *a prima facie* showing of invention prior to the effective date of the Ringold and Rosenkranz patent. To that end, and especially so far as provoking the desired interference is concerned, respondent is fully entitled to rely upon a prior art publication to establish that the utility of the product of the process was already known to those skilled in the art. That the prior art publication in question happened also to be that of Ringold and Rosenkranz is interesting but immaterial as a matter of law.

CONCLUSION

The writ of certiorari should be dismissed as improvidently granted. On the merits, the judgment of the Court of Customs and Patent Appeals was eminently correct and should be affirmed.

Respectfully submitted,

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APPENDIX

APPENDIX A

(The Chronological Development of the Statutory Basis for the Requirement of Utility)

THE CONSTITUTIONAL PROVISION (1787)

Art. 1, Sec. 8. The Congress shall have power . . . To promote the progress of science and *useful** arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

PATENT ACT OF 1790

1 Statutes at Large, 109

An Act to promote the progress of useful Arts

§ 1. *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That upon the petition of any person or persons to the Secretary of State, the Secretary for the Department of War, and the Attorney-General of the United States, setting forth that he, she, or they hath or have invented or discovered any *useful** art, manufacture, engine, machine, or device, or any improvement therein not before known or used, and praying that a patent may be granted therefor, it shall and may be lawful to and for the said Secretary of State, the Secretary for the Department of War, and the Attorney-General, or any two of them, if they shall deem the invention or discovery *sufficiently useful** and important, to cause Letters Patent to be made out in the name of the United States, . . .

PATENT ACT OF 1793

1 Statutes at Large, 318

An Act to promote the progress of useful Arts; and to repeal the act heretofore made for that purpose

§ 1. *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That when any person or persons, being a citi-

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* Emphasis added.

zen or citizens of the United States, shall allege that he or they have invented any new *and useful** art, machine, manufacture, or composition of matter, or any new *and useful** improvement on any art, machine, manufacture, or composition of matter, not known or used before the application, and shall present a petition to the Secretary of State, signifying a desire of obtaining an exclusive property in the same, and praying that a patent may be granted therefor, it shall and may be lawful for the said Secretary of State to cause Letters Patent to be made out in the name of the United States, ...

PATENT ACT OF 1836

5 Statutes at Large, 117

An Act to promote the progress of the useful arts, and to repeal all acts and parts of acts heretofore made for that purpose

* * * * * * * * * *

§ 6. *And be it further enacted,* That any person or persons, having discovered or invented any new *and useful** art, machine, manufacture, or composition of matter, or any new *and useful** improvement on any art, machine, manufacture, or composition of matter, not known or used by others before his or their discovery or invention thereof, and not, at the time of his application for a patent, in public use or on sale, with his consent or allowance, as the inventor or discover; and shall desire to obtain an exclusive property therein, may make application, in writing, to the Commissioner of Patents, expressing such desire, and the Commissioner, on due proceedings had, may grant a patent therefor . . . .

* * * * * * * * * *

§ 7. *And be it further enacted,* That on the filing of any such application, description, and specification, and the

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* Emphasis added.

payment of the duty hereinafter provided, the Commissioner shall make, or cause to be made, an examination of the alleged new invention or discovery; and if, on any such examination, it shall not appear to the Commissioner that the same had been invented or discovered by any other person in this country prior to the alleged invention or discovery thereof by the applicant, or that it had been patented or described in any printed publication in this or any foreign country, or had been in public use or on sale with the applicant's consent or allowance prior to the application, *if the Commissioner shall deem it to be sufficiently useful and important**, it shall be his duty to issue a patent therefor. . . .

CONSOLIDATED PATENT ACT OF 1870

16 Statutes at Large, 198

An Act to revise, consolidate, and amend the Statutes, relating to Patents and Copyrights

* * * * * * * * * *

§ 24. *And be it further enacted,* That any person who has invented or discovered any new *and useful** art, machine, manufacture, or composition of matter, or any new *and useful** improvement thereof, not known or used by others in this country, and not patented, or described in any printed publication in this or any foreign country, before his invention or discovery thereof, and not in public use or on sale for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the duty required by law, and other due proceedings had, obtain a patent therefor.

§ 31. *And be it further enacted,* That on the filing of any such application and the payment of the duty required by law, the commissioner shall cause an examination to be made of the alleged new invention or discovery;

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* Emphasis added.

and if on such examination it shall appear that the claimant is justly entitled to a patent under the law, and that the same is *sufficiently useful and important**, the commissioner shall issue a patent therefor.

THE REVISED STATUTES

(As Approved June 22, 1874.)

Relating To Patents

* * * * * * * * * *

§ 4886. Any person who has invented or discovered any new *and useful** art, machine, manufacture or composition of matter, or any new *and useful** improvement thereof, not known or used by others in this country, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, and not in public use or on sale for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon the payment of the fees required by law, and other due proceedings had, obtain a patent therefor.

§ 4893. On the filing of any such application and the payment of the fees required by law, the Commissioner of Patents shall cause an examination to be made of the alleged new invention or discovery; and if on such examination it shall appear that the claimant is justly entitled to a patent under the law, and that the same is *sufficiently useful** and important, the Commissioner shall issue a patent therefor.

PATENT ACT OF 1897

29 Statutes at Large, Page 692, Chap. 391

An Act revising and amending the statutes relating to patents

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section forty-eight hundred and eighty-six of

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* Emphasis added.

the Revised Statutes be, and the same hereby is, amended . . . so that the clause so amended will read as follows:

"§ 4886. Any person who has invented or discovered any new *and useful** art, machine, manufacture, or composition of matter, or any new *and useful** improvements thereof, not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceeding had, obtain a patent therefor."

[FROM THE PATENT ACT OF 1952:]

§ 101. Inventions patentable

Whoever invents or discovers any new *and useful** process, machine, manufacture, or composition of matter, or any new *and useful** improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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* Emphasis added.

APPENDIX B

Early Federal Cases in the Lower Courts Discussing Usefulness or Utility, Arranged Chronologically

CASE No. 8,568

LOWELL v. LEWIS

[1 Mason. 182; 1 Robb, Pat. Cas. 131.]

Circuit Court, D. Massachusetts. May Term, 1817.

This was an action on the case for the infringement of a patent right. March 23, 1813, Mr. Jacob Perkins obtained a patent for a new and useful invention in the construction of pumps, . . .

Story, Circuit Justice (charging jury). . . .

* * * * * * * * * *

The defendant asserts, in the first place, that the invention is neither new nor useful; . . .

* * * * * * * * * *

To entitle the plaintiff to a verdict, he must establish, that his machine is a new and useful invention; and of these facts his patent is to be considered merely prima facie evidence of a very slight nature. He must, in the first place, establish it to be a useful invention; for the law will not allow the plaintiff to recover, if the invention be of a mischievous or injurious tendency. The defendant, however, has asserted a much more broad and sweeping doctrine; and one, which I feel myself called upon to negative in the most explicit manner. He contends, that it is necessary for the plaintiff to prove, that his invention is of general utility; so that in fact, for the ordinary purposes of life, it must supersede the pumps in common use. In short, that it must be, for the public, a better pump than the common pump; and that unless the plaintiff can establish this position, the law will not give him the benefit of a patent, even though in some peculiar cases his inven-

tion might be applied with advantage. I do not so understand the law.

* * * * * * * * * *

All that the law requires is, that the invention should not be frivolous or injurious to the well-being, good policy, or sound morals of society. The word "useful," therefore, is incorporated into the act in contradistinction to mischievous or immoral. For instance, a new invention to poison people, or to promote debauchery, or to facilitate private assassination, is not a patentable invention. But if the invention steers wide of these objections, whether it be more or less useful is a circumstance very material to the interests of the patentee, but of no importance to the public. If it be not extensively useful, it will silently sink into contempt and disregard.

Case No. 1,217

Bedford v. Hunt et al.

[1 Mason, 302; 1 Robb, Pat. Cas. 148.]

Circuit Court, D. Massachusetts. Oct. Term, 1817.

This was an action on the case for the infringement of a patent right. Bedford, [on July 16,] 1806, obtained a patent for a new and useful improvement in the making of boots, bootees, and shoes.

* * * * * * * * * *

In the course of the argument, the following questions of law were made to the court. 1st. What degree of usefulness in an invention or improvement the law required, in order to support a patent?

* * * * * * * * * *

Story, Circuit Justice, (after stating the facts.) No person is entitled to a patent under the act of congress unless he has invented some new and useful art, machine, manufacture, or composition of matter, not known or used before. By useful invention, in the statute, is meant such

a one as may be applied to some beneficial use in society, in contradistinction to an invention, which is injurious to the morals, the health, or the good order of society. It is not necessary to establish, that the invention is of such general utility, as to supersede all other inventions now in practice to accomplish the same purpose. It is sufficient, that it has no obnoxious or mischievous tendency, that it may be applied to practical uses, and that so far as it is applied, it is salutary. If its practical utility be very limited, it will follow, that it will be of little or no profit to the inventor; and if it be trifling, it will sink into utter neglect. The law, however, does not look to the degree of utility; it simply requires, that it shall be capable of use, and that the use is such as sound morals and policy do not discountenance or prohibit. In the present case there cannot be the slightest doubt, upon the evidence, that the patent is for a useful invention, in a very large sense.

CASE No. 13,957

THOMPSON et al. v. HAIGHT et al.

[1 U. S. Law J. 563.]

Circuit Court, S. D. New York. 1826

VAN NESS, District Judge. The patent in question is dated on the 12th day of August 1820. The specification annexed, is in these words: "This invention or improvement, in the composition, or making, or manufacturing, of ingrained carpets or carpeting, consists in making the warp thereof, that is, the threads that extend lengthways of the same, of cotton, flaxen tow, or hempen yarn or thread, and weaving or combining them therewith, in the manner of weaving carpets or carpeting; . . .

* * * * * * * * * *

It has been seen, plainly, I think that the subject of a patent must be both "new" and "not known or used, before the application." It must also be "useful". This term has been defined to mean such an invention as is

"not frivolous, or injurious to the well being, good policy, or sound morals of society" (Lowell v. Lewis [Case No. 8,568]); such an invention "as may be applied to some beneficial use in society in contradistinction to an invention which is injurious to the morals, the health, or the good order of society" (Bedford v. Hunt [Id. 1,217]). A more enlarged and comprehensive signification may safely and properly be ascribed to the term "useful". It may well be added, that it must be an art, &c., not mischievous to the state, or generally inconvenient, which brings it within the terms of the British statute. It seems to me to have been used and intended as equivalent to that clause in the sixth section of the statute of James, which defines the nature of the new manufactures which will be exempted from the general prohibition of the act. What, if I may be allowed the phraseology, can be less useful than a patent that interrupts the practice of an art, &c., commonly known? What more pernicious to the state than the monopoly of a machine or manufacture already in use? I should not hesitate to decide, under this expression in the act, if the point were presented, that such an art, &c., or such a machine or manufacture, were not patentable, and that the grant was void. As this case, in my view of it, does not turn on this point, it is not necessary to pursue its investigation further.

CASE No. 17,896

WINTERMUTE v. REDINGTON

[1 Fish. Pat. Cas. 239.]

Circuit Court, N. D. Ohio. Dec., 1856

WILLSON, District Judge (charging jury).

* * * * * * * * * *

The general character of the patentee's invention, as declared in the patent itself, is, "a new and useful improvement in the application of hydraulic power."

* * * * * * * * * *

In the second place, is this alleged invention new and useful?

* * * * * * * * * *

There are certain legal rules which will govern you in testing the novelty and utility of this invention. And I may here remark, that the word "useful," in the section of the statute which I have quoted, is not used for the purpose of establishing general utility at the test of a sufficiency of invention to support the patent. It is used merely in contradistinction to what is friviolous or mischievous to the public. Mr. Justice Story has illustrated this rule by saying that "a new invention to poison people, or to promote debauchery, or to facilitate private assassination, are not patentable inventions. But if the invention steers wide of these objections, whether it be more or less useful, is a circumstance very material to the patentee, but of no importance to the community." It is quite sufficient if it has any utility. The plaintiff, then, has answered the requirements of the law, if his invention in usefulness is but a slight improvement on former wheels, even though it be for an improvement upon what is old.

* * * * * * * * * *

It is true that a patent can not be sustained for a mere principle. For instance, Sir Isaac Newton's discovery of the principle of gravitation could not be the subject of a patent. But it is equally true, that a principle may be embodied and applied, so as to afford some result of practical utility in the arts and manufacturers, and that under such circumstances a principle may be the subject of a patent. It is, however, the embodiment and the application of the principle which constitute the grant of the patent. And it has been justly said "that the principle of such embodiment and application, are essentially distinct; the former being a truth of exact science, or a law of natural science, or a rule of practice; the latter a practice founded upon such truth, law, or rule."

CASE No. 10,662

PAGE v. FERRY

[1 Fish. Pat. Cas. 298.]

Circuit Court, E. D. Michigan. Oct., 1857

WILKINS, District Judge (charging the jury).

* * * * * * * * * *

He alleges, in the statement of his cause of action, that "he was the original inventor of a new and useful improvement in the portable circular saw mill, described in his patent. . . .

* * * * * * * * * *

The utility of the invention is an essential requisite to the validity of the patent. A useless invention, even if patented, is not, and never will be, of any profit to the public. But the law prescribes a rule, by which you must be governed in applying this test to the invention now in controversy. It is this: Is it frivolous? Is it mischievous? Is it of any use? A general utility is not prescribed by the statute as the test of the sufficiency of the invention. The word is used in contradistinction to what is frivolous, or what is mischievous to the public.

New inventions in regard to some trifling article of dress, such as hoops, or crinolines, or, in the language of Judge Story, "a new invention to poison people," are not patentable. The one is frivolous, the other mischievous.

An invention not obnoxious to these objections, whether more or less useful if it be of any use, is embraced within the spirit of the law. A slight improvement of an old machine is a useful improvement. But, if the alleged invention should be absolutely hurtful or injurious, it is no improvement—it is not "a useful invention," and, it is your province to determine, from the evidence of witnesses experienced in the subject-matter, the validity of this objection.

CASE No. 12,292

Ex parte SANDERS

[3 App. Com'r Pat. 438.]

Circuit Court, District of Columbia. Feb. 20, 1861

Appeal [by D. G. Sanders] from the decision of the commissioner of patents, refusing him a patent for alleged improvement in constructing powder mills.

DUNLOP, Chief Judge.

* * * * * * * * * *

The appellant's proposed inner strong built tower would be of no patentability, unless it was shown to be a protection to life and property in the usual and ordinary manufacture of gun powder. No such proof is given and in the absence of it, as the examiner properly argues, the grant of a patent would mislead the public, and tend to engender a false security in manufactures and workmen, producing, perhaps, greater risk of life and property than now exists, in this dangerous manufacture. I think the commissioner was right in sustaining the examiner board of appeals, and refusing the appellant a patent.

I have no power, as is intimated in the fourth reason of appeal, to send the case back to the office, to prove, by competent experts, the alleged utility of the structure or to receive or hear such proof on this appeal.

CASE No. 18,285

CROMPTON v. BELKNAP MILLS et al.

[3 Fish. Pat. Cas. 536.]

Circuit Court, D. New Hampshire. May, 1869

This was a bill in equity [by George Crompton against the Belknap Mills and others] filed to restrain the defendants from infringing letters patent [No. 6,939] for

"an improvement in looms for weaving figured fabrics," granted to Moses Marshall, December 11, 1849, . . .

* * * * * * * * * *

Before Clifford, Circuit Justice, and Clark, District Judge. Clark, District Judge . . .

His invention must, therefore, be taken to be new. Precisely how useful it may be, the court have not undertaken to decide; but that it is sufficiently so to support a patent, we have no doubt. Other looms may have been preferred by different persons, or may have found a readier sale; but that good cloth can be woven by Marshall's loom and invention there is sufficient evidence. To warrant a patent, the invention must be useful, that is, capable of some beneficial use, in contradistinction to what is pernicious, or frivolous, or worthless. Dickinson v. Hall, 14 Pick. 217; Whitney v. Emmett [Case No. 17,585]; Many v. Jagger [Id. 9,055].

APPENDIX C

Cases in the Supreme Court Discussing Usefulness or Utility, Arranged Chronologically

In *Seymour* v. *Osborne,* 11 Wall. (78 U.S.) 516 (1870), the Court stated as follows at pages 548-9:

"New and useful machines are the proper subjects of an application for a patent, and so, by the express words of the act of Congress, are new and useful improvements on any machine.

* * * * * * * * *

"Improvements for which a patent may be granted must be new and useful, within the meaning of the patent law, or the patent will be void, but the requirement of the patent act in that respect is satisfied if the combination is new and the machine is capable of being beneficially used for the purpose for which it

> was designed, as the law does not require that it should be of such general utility as to supersede all other inventions in practice to accomplish the same object."

However, the patent involved in *Seymour* was for a reaping machine, and hence the Court did not have before it the precise question with which we are here concerned.

In *Densmore* v. *Scofield,* 102 U.S. 375 (1880), the Court stated as follows at page 378:

> "There is no novelty and no utility. It does not appear (to use the language of appellants' brief) that there was 'a flash of thought' by which such a result as to either was reached, or that there was any exercise of the inventive faculty, more or less thoughtful, whereby anything entitled to the protection of a patent was produced. It strikes us that the entirety and all the particulars of the summary and the claims are frivolous and nothing more."

Since the Densmore et al patent there involved was directed to "a new and useful improved oil-tank car for carrying petroleum and other like substances in bulk", it seems obvious that the Court was not referring to utility in the sense in which it is used in the present case. It would seem that the Court's remarks must be construed as referring to what we would today call lack of unobviousness under 35 U.S.C. § 103.

In *McClain* v. *Ortmayer,* 141 U.S. 419 (1891), the Court stated as follows at page 427:

> "Counsel for the plaintiff in the case under consideration has argued most earnestly that the only practical test of invention is the effect of the device upon the useful arts—in other words, that utility is the sole test of invention, and, inferentially at least, that the

utility of a device is conclusively proven by the extent to which it has gone into general use."

and as follows at page 429:

"While this court has held in a number of cases, even so late as *Magowan* v. *The New York Belting and Packing Co. ante,* 332, decided at the present term, that in a doubtful case the fact that a patented article had gone into general use is evidence of its utility, it is not conclusive even of that—much less of its patentable novelty."

The McClain patent there involved was for "a pad for horsecollars", which assuredly at that time at least had utility in the sense with which we are here concerned. There, however, the Court was evidently using the term by way of referring to commercial use or acceptation.

In *Gandy* v. *Main Belting Company,* 143 U.S. 587 (1892), the Court stated at pages 593 and 594-5 as follows:

"(3) The questions of novelty and utility may properly be considered together."

* * * * * * * * *

"While some of the testimony would seem to indicate that there is no great advantage in this method of construction, we think the fact that it has been largely adopted by manufacturers and that all the modern improved belting ordered or made by Gandy and in general use both in this country and in Europe, is made in this way, is, for the purposes of this case, sufficient evidence of its utility. *Magowan* v. *New York Belting Co.,* 141 U.S. 332."

The Gandy patent there in suit was for "an improved belt or band for driving machinery and an improved mechanical process for manufacturing the same", and so it

seems obvious that there "utility" and "commercial success" were synonymous.

In *Grant* v. *Walter,* 148 U.S. 547 (1893), the Court remarked as follows at page 556:

> "The advantages claimed for it, and which it no doubt possesses to a considerable degree, cannot be held to change this result, it being well settled that utility cannot control the language of the statute, which limits the benefit of the patent laws to things which are new as well as useful. The fact that the patented article has gone into general use is evidence of its utility, but not conclusive of that and still less of its patentable novelty. *McClain* v. *Ortmayer,* 141 U.S. 419, 425, and authorities there cited."

The Grant patent there involved was for the "art of reeling and winding silk and other thread", and the remarks made above in connection with the *McClain* case apply equally here.

In *DuBois* v. *Kirk,* 158 U.S. 58 (1895), the Court observed at pages 63-64 as follows:

> "That it is a useful improvement can scarcely be doubted. Indeed, in view of the fact that John DuBois made application for a similar patent himself, and that he and the defendant, since his death, have constantly made use of a device which differs from that of Kirk's only in the fact that he relieves the pressure by lowering the end of the forebay to a level beneath the apex of the dam, it does not lie in defendant's mouth to deny its utility. The presumptions, at least, are against him. *Lehnbeuter* v. *Holthaus,* 105 U.S. 94; *Western Electric Co.* v. *LaRue,* 139 U.S. 601, 608; *Gandy* v. *Main Belting Co.,* 143 U.S. 587, 595."

The Kirk patent of that case was for "a new and useful improvement in movable dams". The Court there refers

to a still different kind of utility, but nevertheless one unlike the utility of the present case.

In *Diamond Rubber Company* v. *Consolidated Rubber Tire Company,* 220 U.S. 428 (1911), we find the following comments on so-called utility.

(at page 433:)

> "Anticipating somewhat, we may say that the tire has utility is not disputed; to what its utility is to be attributed is in controversy."

(at page 434:)

> "The tire has utility, a utility that has secured an almost universal acceptance and employment of it, as will subsequently appear."

(at page 440:)

> "The utility of the Grant patent, therefore, was not attained in the Willoughby patent. The Rubber Company's conduct is confirmation of this. It uses the Grant tire, as we shall presently see, not the Willoughby tires."

(at page 441:)

> "That the tire is an invention is fortified by all of the presumptions, the presumption of the patent by that arising from the utility of the tire. And we have said that the utility of a device may be attested by the litigation over it, as litigation 'shows and measures the existence of the public demand for its use.' *Eames* v. *Andrews, supra.* We have shown the litigation to which the Grant tire has been subjected."

(at page 442:)

> "To what quality the utility of the tire may be due will bear further consideration, if for no other reason than the earnest contentions of counsel."

The Grant patent involved in that case was for an improvement in rubber tires for vehicle-wheels, and so an entirely different kind of "utility" was involved.

In *Beidler* v. *U. S.,* 253 U.S. 447 (1920), we find the following at page 453:

> "The application of these requirements of the law to our conclusion that the only form of construction of the machine and the only method of operation of it which are disclosed in the patent would not produce a sufficiently uniform and rapid development of the film to render it useful, must result in the approval of the judgment of the Court of Claims, that the patent is invalid and void, for the reason that it fails to disclose a practical and useful invention."

The Beidler patent there involved was for "an improvement in photographing and developing apparatus". From the Court's reference to failure "to disclose a practical and useful device," it is obvious that there was really no question of utility in the present sense but only one of lack of sufficiency of disclosure, or as we might put it today, the holding of invalidity was based on 35 U.S.C. § 112 rather than on 35 U.S.C. § 101.

Of all the Supreme Court cases that have discussed the question of utility or usefulness in any particular detail, the only one having language that might on first impression be thought to be applicable here is *Corona Cord Tire Company* v. *Dovan Chemical Corporation,* 276 U.S. 358 (1928). Excerpts from that case are as follows:
(at page 366:)

> "The patent contains twelve claims. Those mainly relied on are: the fourth, for 'The process of treating rubber or similar materials which comprises combining with the rubber compound diphenylguanidine'; the eighth, for 'The process of treating rubber or

similar materials, which comprises combining with the rubber compound a vulcanizing agent and diphenylguanidine;' and the twelfth, for 'A vulcanized compound of rubber or similar material combined with a vulcanizing agent and diphenylguanidine.' 'Vulcanizing is old and well known.' "

(at page 378:)

"In 1916, while with the Norwalk Company, Kratz prepared D.P.G. and demonstrated its utility as a rubber accelerator by making test slabs of vulcanized or cured rubber with its use. Every time that he produced such a slab he recorded his test in cards which he left with the Norwalk Company, and kept a duplicate of his own."

(at page 382:)

"Kratz was not seeking a patent. He inferred, with reason, that D.P.G. would not make a successful business accelerator because of its then cost. He is wholly disinterested pecuniarily in the result of this case.

* * * * * * * * *

". . . he did discover in 1916 the strength of D.P.G. as an accelerator as compared with the then known accelerators, and that he then demonstrated it by a reduction of it to practice in production of cured or vulcanized rubber.

"This constitutes priority in this case. It was not followed by commercial use thereafter, because of the then cost of D.P.G."

(at page 383:)

"It is said that these tests of Kratz were mere abandoned laboratory experiments. There was no abandonment in the sense that Kratz had given up what

> he was seeking for in demonstrating a new and effective accelerator in D.P.G. If he had been applying for a patent for the discovery, he clearly could have maintained proof of a reduction to practice. *A process is reduced to practice when it is successfully performed.*" [Emphasis added]

(at page 384:)

> "It is a mistake to assume that reduction to use must necessarily be a commercial use. If Kratz discovered and completed, as we are convinced that he did, the first use of D.P.G. as an accelerator in making vulcanized rubber, he does not lose his right to use this discovery when he chooses to do so, for scientific purposes or purposes of publication, because he does not subsequently sell the rubber thus vulcanized, or use his discovery in trade, or does not apply for a patent for it. It is not an abandoned experiment because he confines his use of the rubber thus produced to his laboratory or to his lecture room."

At first it might be supposed that the Court's holding with respect to Kratz's work should be regarded as determinative of the present case. ("A process is reduced to practice when it is successfully performed"). This is not so, however, for a number of reasons. In the first place, these comments were not made with reference to the Weiss patent which was in suit, but with reference to the earlier work of another relied upon as a "reference" against the Weiss patent. They are therefore dicta. More important, however, is the fact that the patent in suit (as well as Kratz's work) related in terms to a vulcanizing process and the resulting product. Such a process and such a product seem unquestionably to have "utility" within any reasonable interpretation of the patent statutes, whether of the past or of the present.

APPENDIX D

Patents and the Conquest of Disease

By John T. Connor

President, Merck & Co., Inc.

It has been apparent for some years now that the ability of a free society to maintain a high rate of discovery in relation to that of the Soviet Union will largely determine the future complexion of history. It is therefore appropriate, it seems to me, that the National Research Council of the National Academy of Sciences should make a fresh examination of the contribution being made to our rate of discovery by the American patent system. It is a privilege to be asked to contribute to this examination.

Since the days when Robert Fulton got a patent on his steamboat, the environment of invention has shifted radically. Its modern home is the U. S. corporation, in whose laboratories roughly $10 billion will be spent this year. This is about 70% of the nation's total outlay for research and development. Pharmaceutical companies are spending well over $200 million of this, or better than 9 cents out of every dollar they take in. This is a higher percentage of its own money devoted to R & D than you will find in any other industry. The relation of patents to the rate of discovery of new drugs is therefore most pertinent to the subject you are examining.

First, let me say that no drugs were ever discovered in our laboratories just because they could be patented. Businessmen do not find them; the search is conducted by scientists who are motivated by a desire to penetrate the unknown and to conquer disease. The businessman's job is the organization of this search; our incentive is the re-

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Address delivered at the Symposium on the Effect of Patents on Research, National Research Council, National Academy of Sciences, Washington, D.C., June 14, 1961.

ward the American people give to those who make significant contributions to progress.

The partnership between the quest for scientific knowledge on the one hand and the drive for financial success on the other is one of the most powerful combinations developed by our free society. It has not only brought about the chemical revolution in medicine, it has transferred the work of our world from man to machine, powered our economic growth and built a mighty shield for the republic.

Case History

To show how this partnership works in my industry, I shall use the case history of the most important compound our company has discovered since we introduced vitamin B_{12} and cortisone. After telling the story of its development briefly, I shall then attempt to isolate the role that patents played.

The drug I have chosen is chlorothiazide, which I shall refer to by our trademark, Diuril. Diuril was chemistry's major contribution to medicine in 1958. It has saved countless lives. It is the first really safe and effective drug physicians have had for the treatment of edema, an often fatal condition associated with heart failure and other diseases. The victims of edema are unable to excrete fluids efficiently through the kidneys and literally become waterlogged. Diuril has also revolutionized the treatment of high blood pressure. Three or four million Americans are benefiting today from this discovery and from the new class of compounds that followed on its heels.

The Diuril story goes back to 1943 when our laboratory people, concerned because the treatment of certain diseases was being held back for lack of fundamental knowledge about the human kidney, launched a basic research project known as the Renal Program. During the following fifteen years, the Renal Program discovered two medically

significant drugs and added several striking new concepts to the theory and teaching of kidney physiology.

To direct the program, our research directors chose Dr. Karl H. Beyer, a young physiologist, and Dr. James M. Sprague, an organic chemist renowned for his discoveries in the field of sulfa drugs. Beyer and Sprague first tackled the problem of the excess excretion of penicillin, which went out through the kidneys so fast that four-fifths of it never reached the site of infection. In 1943 penicillin was so scarce that its waste could be counted in human lives.

Two Failures

Within a year, the Renal Program had proved for the first time in medical history that a chemical compound could prevent the excretion of a single substance without blocking the excretion of everything else. Unfortunately, the compound, PAH, was too inefficient to be useful in blocking penicillin.

It took three more years to find a better one—carinamide—but this turned out to be the second big failure. In the process of discovering it, though, the Renal Team developed an unorthodox theory which is too lengthy to explain here, even if I had the technical competence, but it opened up new horizons for renal physiology and therapeutics.

Finally, in 1951—almost eight years after the Renal Program began—we reached a drug that would do the job, our compound Benemid. But Benemid was born too late. Penicillin, by then, was both plentiful and cheap and medicine could easily afford to waste it. So Benemid became a remedy in search of a condition to relieve. One of the conditions that needed relief, I might add, was the company exchequer out of which the eight years of commercially fruitless research had been paid.

Fortunately for both medicine and the exchequer, a chance observation led to the discovery that Benemid increased the excretion of uric acid, the principal villain in gout. As a result, for the past ten years thousands of victims of this chronic, incurable disease have been beholden to this drug for saving them from the most severe effects of gout, including excruciating pain. Benemid, which was patented, helped finance the Renal Program through to its final achievement.

New Objective: Heart Disease

When the passage of time killed the usefulness of the penicillin project, the Renal Program chose as its next objective the discovery of a diuretic that would remove sodium chloride from the body and draw out with it the excess water associated with edema. This was considered at the time to be theoretically impossible, but by then the Renal Team felt they had accumulated enough fundamental knowledge about the kidney to find a way. It took them four more years and one more spectacular and costly failure to do it plus two more years of animal and human testing to be sure they had reached their objective. When they reached it, it was Diuril, which not only proved to be the first safe and effective diuretic in medical history, but it bore out the Renal Team's theory that a compound that would increase the excretion of salt would also lower blood pressure.

Now, let us try to isolate the role that patents played in this research. We can do this by seeing whether the major decisions made during the course of the Renal Program would have been different had the patent system not been in existence when these decisions were made.

Major decision No. 1 was to launch the Renal Program in the first place. In the absence of the patent system, such a basic research program on the human kidney would

have been economically unsupportable. Let me explain why. The normal function of an industrial laboratory is applied research and development. The amount of the financial commitment is within predictable limits. Basic research, on the other hand, is a corporate luxury.

When you are searching for the unknown you are—by definition—paying an unknown price for an unknown result. About 99 times out of 100 the cost turns out to be high and the result turns out to be zero. During World War II, for instance, Merck dumped the equivalent of $2 million in 1961 dollars into an effort to synthesize penicillin. We won praise from the scientific community for our contributions to knowledge. But we ended up with nothing we could sell. As a double punishment for failure we also lost our once commanding position in the penicillin market to competitors who had followed the more predictable applied research route of large-scale fermentation.

The kind of basic research that produced such historic contributions to medicine as cortisone, Diuril and the vitamins, B_6 and B_{12}—all of which were born in a Merck laboratory—is possible only if the potential reward is commensurate with the risk. The patent system was established to provide just such a reward and encourage just such a risk. In the absence of the patent system, physicians would still be helpless in the face of many—if not most—of the disease conditions these drugs alleviate. The basic research that brought them into being would not have been undertaken.

Research Without Patents

Let us now return to the Renal Program. Without the protection of the patent system, our laboratories might still have tackled the immediate research problem of finding a substance that would inhibit the excretion of peni-

cillin. But for how long? Perhaps the project might have survived failure No. 1—PAH, which took a year. But it is clear that the Renal Team would not have been supported for four years through failure No. 2—carinamide. Well before then they would have folded their tent and moved on to a more commercially promising line of inquiry.

What would have been lost? First, Benemid would not have been discovered in 1951. Since nothing comparable has turned up in the past ten years, we can assume that scores of thousands of sufferers from gout would have paid for this slowdown in the rate of discovery with a decade of frequent physical torture.

Second, Diuril would not have been born in 1958. No one knows how long the three or four million victims of edema and hypertension who have benefited from its discovery would still have to wait for the new lease on life brought them by this drug and its analogues.

Third, renal physiology and therapeutics would have lost the significant scientific papers contributed by Beyer, Sprague and others throughout the whole fifteen years of the Renal Program. Without the protection of patents, corporate research would have to be conducted in secrecy. One of the most valuable effects of the patent system is that it protects disclosure and encourages the sharing of newly discovered knowledge. This has been very evident in our industry. Merck scientists in one recent year published more basic research papers than those working for any but four of the largest corporations in the country—General Electric, Bell Telephone, Du Pont and American Cyanamid.

Fourth, the Merck Sharp & Dohme Research Laboratories would have lost the nourishing income produced by Benemid and Diuril since past discoveries pay for future research. How many of the one-thousand-plus employees in our research laboratories would still be there if the

patent system were abolished, and what they would be doing with whatever was left of their $20-odd million budget, I am not prepared to speculate.

By using the same case history approach I have with Diuril, I could cite chapter and verse from the development sagas of several sulfa drugs, streptomycin, cortisone and B vitamins. The facts—all taken from Merck's records—speak the same conclusion: without patents, the rate of significant drug discovery would eventually slow down to its pace in the Soviet Union, where it is only slightly ahead of the snail.

The Kefauver Patent Proposals

It is not just an academic exercise I have been taking you through in the past few minutes. It is on the verge of becoming a reality. Senator Kefauver right now is trying to drive a bill through Congress that is designed to remove both the encouragement and the protection of patents from the search for new drugs.

The Senator's bill would do this through three major provisions. First, it would cut the exclusive right to a patent down from seventeen years to three. Second, the three years would start running not from the date the patent is issued but from the date the new drug is permitted to be marketed by the Food & Drug Administration. Third, after three years, compulsory licensing would force the inventor to share not only his patent but also all his know-how with any competitor willing to pay a maximum royalty of 8%. Let us examine these provisions.

The three-year limitation would reduce by 80% the period when a patent is protected. It would be the first reduction in the term of a patent since 1790, when Congress, following the mandate written into the Constitution, passed the original patent statute. It would also be the first time a particular industry had been singled out for such discrimination.

The provision for starting the three-year term as of the date the new drug is marketed would, for all practical purposes, complete the process of wiping out the protection of patents. This is because, in the case of a high percentage of new drugs, patents do not issue until at least three years after the product is put on the market. Patent interference suits account for most of this delay. The overburdened machinery of the Patent Office accounts for the remainder.

Compulsory Licensing

To get a complete understanding of what the patent provisions of the Kefauver bill would do to the search for new drugs, we have to examine the effects of the third major proposal—the one for compulsory licensing, which requires the concurrent surrender of all know-how. A clear picture of this will emerge from another look at the case history of Diuril.

After more than fifteen years of research by Merck, men and women trained in twenty-five different specialties, including a year of testing the new compound on animals, fourteen more months of testing it on patients by 1,000 clinical physicians in this and eighteen foreign countries and extensive chemical engineering development to learn how to manufacture a safe and effective product on a mass production basis—after all this, we launched Diuril on the market. We then spent several million dollars to inform physicians about the drug's medicinal properties—good and bad—perfected our method of manufacture, and invested nearly $10 million in manufacturing facilities here and abroad to satisfy the world-wide demand.

Three years after we had introduced Diuril on the market Senator Kefauver would have the government step in and order us to turn over everything we had learned to any number of our 1,300 competitors in this country and—

even more serious—to any foreign producer who can get a license to sell in the U. S.

The result would be to reward us for our eighteen years of work and a magnificent contribution to the health of the American people by literally forcing us to subsidize our competitors here and abroad. These "freeloaders" could get into the business by merely writing a letter. They would have contributed nothing to the research, shared none of the risks and paid for none of the original costs. Their maximum investment, if any, would be the cost of duplicating our plant after we turned over our blueprints and technical data to them. Most of those "coattail riders" would not make any investment at all but would merely buy the drug—probably from a low-cost foreign licensee—in bulk for repackaging and sale to an already established market.

This is a most unusual way to promote progress. The Senator's proposal is that those companies that do research subsidize those that do none so that the imitators can sell below the costs of the creators. It reminds one of what Voltaire had Candide say while observing the incentive system of 18th century England. The British had just hanged an admiral. "In this country," Candide explained, "it is found good, from time to time, to kill one admiral in order to encourage the others."

Prices and Competition

The author of the Kefauver bill explains the purpose of its patent provisions rather differently. They are designed, he says, to lower prices by increasing competition. He ignores the fact that prices have been steadily falling for years even in the face of rising costs. The composite index for all drugs sold by Merck's ethical pharmaceutical division dropped 17% from 1953 to 1960. The record of the entire industry shows a decline of over 7% in prices

charged by pharmaceutical manufacturers to their customers from 1949 to 1959—a time when nearly all other prices went up.

If, in the face of this record, he still thinks that prices are too high—a conclusion he is fond of stating but has never proven—why does he not ask Congress directly for price control? He is smart enough to realize, of course, that to be effective price control would have to cover not just the manufacturers but the thousands of local retail and wholesale pharmacies, hospitals and even fees charged by doctors for drug therapy. Instead of that politically unattractive alternative, he has selected the route of tinkering with patent incentives, thereby risking the destruction of the fiercest and most socially useful competition in the industry, which is the competition between laboratories. By robbing research of the rewards for medically significant discoveries, the Kefauver bill would not increase this kind of competition. It would strangle it and divert the creative energies of the industry into the advertising and sale of the status quo.

It is clear from the record that the effect of patents in our industry has been to foster research competition and thus increase the rate of discovery of new and effective drugs. Since the late 1930s when our then infant industry, with the aid of patents, started to organize research for the war against disease, we have been able to make a contribution to the health of the American people that is comparable to what technology has done for their wealth. In those two short decades the life expectancy of our population has risen by 10% and the list of major terror diseases has been reduced, mainly through the invention of new medicines, to a handful.

Most of the important new medicines have not come, as is popularly supposed, from the scientists of our universities or government, or, as Senator Kefauver would have

the public believe, from abroad. Of the top twenty-five therapeutically most useful drugs—that is, those most frequently prescribed by today's physicians—six were combinations and therefore of mixed parentage. Of the remaining nineteen, twelve were born in the laboratories of the U. S. pharmaceutical industry. One was discovered at Yale by a researcher working under a grant from an American company. The remaining six came from abroad —one of them from Oxford and the rest from our competitors in Germany, France and Austria.

Partners In Discovery

Aside from the adverse effects on the pharmaceutical industry, the patent provisions of the Kefauver bill are contrary to the public interest. By destroying the patent incentive for research, this bill could well destroy pharmaceutical research itself. It would reduce the great creative companies in the U. S. pharmaceutical industry to the level of their counterparts in the Soviet Union, which merely copy what others have invented. It would stop in midstream many of the most promising inquiries into the nature and control of illness. It would slow down the rate of new drug discovery and defer our ultimate victory over heart disease, cancer and mental illness. By doing so it would cost countless American lives.

The nation is on the road toward the conquest of disease through research. Our hopes and our hearts are in this battle. And hope deferred, as Solomon said, maketh the heart sick.

APPENDIX E

Statement of

WALTER A. MUNNS

President, Smith Kline & French Laboratories

before

Subcommittee on Patents, Trademarks and Copyrights

of the

Committee on the Judiciary

UNITED STATES SENATE

Thursday, August 19, 1965

Statement of Walter A. Munns,

President, Smith Kline & French Laboratories,

accompanied by Dr. J. Kapp Clark,

Vice President of Research and Development

Mr. Chairman and members of the Subcommittee, my name is Walter A. Munns. I am President of Smith Kline & French Laboratories of Philadelphia, a manufacturer of prescription drugs. I am accompanied by Dr. J. Kapp Clark, Vice President of Research and Development.

My career with the company started 36 years ago. In 1945, I was named a Vice President, became Executive Vice President in 1956, and in May of 1958, was elected President of the company.

The history of Smith Kline & French Laboratories goes back through 124 years of continuous operation. More than 5,000 people are employed by the company, 3,500 in this country and about 1,500 abroad. We have 30 foreign subsidiaries or branches, and own and operate manufacturing plants in five foreign countries. Our products are

marketed throughout the world. With annual sales around $200 million, the company is among the top 10 prescription drug companies in America and has approximately 14,000 shareholders. In 1965, we plan to spend about $23 million for research.

I have requested an opportunity to testify before this Subcommittee in order to comment broadly and generally on the impact upon my company of government patent policy.

I should like to emphasize, however, that although in this testimony I represent the point of view of Smith Kline & French, I am also firmly convinced that I represent the interests of the American people. Our common objective is certainly the health of our nation, which has already so greatly benefited by the development of the breakthrough drugs that have practically eliminated some diseases and greatly reduced the death rate and length of illness from others. Our objective must be the most rapid possible development of new medicines, and whatever new legislation is proposed should in the public interest be geared towards the greatest possible stimulation of medical and drug research.

* * *

First of all, I would like to make clear the tremendous gulf there is—in terms of time, research effort and money—between a new and patentable chemical compound and a safe and effective medicine in a bottle that can be used to treat human beings.

I should like to begin by briefly describing the background of the last product we introduced, a new diuretic discovered by my company and marketed in 1964. The work on this product is typical of pharmaceutical research and development—whether or not government funds are involved—and a description of it will, I believe, give you an idea of the great amount of time and money we spend on our R and D program.

Indicated for the treatment of water retention in body tissue from widely varying causes, this product is effective in many patie ts resistant to other diuretics and, in combination with other diuretics, potentiates their effects. It has the advantage of not causing loss of potassium from the body, an undesirable characteristic of many other diuretics.

This compound, whose generic name is triamterene, was discovered as part of a program of research we were conducting on diuretic agents, and a patent was applied for in 1959. Though it is impossible to allocate exact costs, the expense of this patentable invention probably did not exceed $50,000. Then came the major part of the research and development effort, the transformation of the compound triamterene into the medicine we market under the trademark 'Dyrenium'. This work on 'Dyrenium' took 5½ years and cost over $2 million. The following table summarizes, in time and costs, the various stages in its development:

Activity	Months	Cost To SK&F
1. From beginning of animal tests to decision to test in man	15	$350,000
2. From beginning of clinical testing to New Drug Application submission	18	735,000
3. From New Drug Application to Food and Drug Administration approval	33	1,014,000
Grand Total	5 yrs./ 6 mos.	$2,099,000

This was a hazardous speculation. At any time during this process the product might have been shown to have

some property that would have made it unsuitable for human administration, and our work and expenses to that date would have gone for nothing. We could never have justified this speculation without the exclusivity provided by a patent.

In the case of 'Dyrenium', there was of course no question of patent protection. We have the patent rights. The cost of the original research and the subsequent development was paid for by Smith Kline & French Laboratories alone.

But many of the important drugs now in use or under current investigation have been discovered through collaboration between academic scientists and drug companies, and, with proper legislation, this collaboration should become even more productive in the future because of the great expansion in the government's investment in medical research. Although the Subcommittee is undoubtedly familiar with the process of collaborative research in the health field, I would like to amplify certain aspects of it, since it is so different from that in certain other fields where the government normally makes a research contract with a *commercial concern.*

What usually happens in the health field is this. The government makes a research grant to an academic scientist in a nonprofit institution, such as one of our great universities, to investigate a given field. In the course of this investigation, the scientist discovers a new compound, but he does not know what this compound will do to human beings. He may have a hunch that it has medicinal use because of its chemical relationship to known medicinal agents. But he cannot be sure; and the odds against its being a valuable medicine are estimated to be five thousand to one. It is rare indeed that the chemist has the biological data about his compound upon which to base a prediction.

The only way in which the medicinal value of his compound can be demonstrated is by exhaustive testing, first

in animals, then in humans. For the most part, universities do not have the time and facilities for the required animal testing nor is this type of testing in keeping with their academic purpose. It is logical, then, that the discoverer of a new compound goes to a drug firm for help since, as the Subcommittee knows, industry does have complete facilities and long experience in testing chemicals in animals. For example, in 1964, SK&F used more than 500,000 animals in its testing program. Let me emphasize again that such tests offer the only way in which knowledge can be gained about the therapeutic action of a drug before it is evaluated in man.

Drug testing in animals has today become so complex that new methods of testing are often invented as the investigation proceeds. For example, in the research on the diuretic project I mentioned, conventional tests had failed to show diuretic activity—and on that basis the compound might have been shelved. In devising ways to test other agents for diuretic activity, however, a new test was developed, and this test revealed that our compound did have diuretic activity.

After it has been determined in animals that a compound has an activity which suggests a medically useful effect in humans, the even greater hurdle of determining its activity, safety and effectiveness in man must be overcome. Drug companies work closely with hospitals and other medical centers to study drugs in humans, and they have techniques and specialized skills for evaluating the resulting data. This phase of developing a medicinal product—known as clinical testing—involves hundreds of physicians, thousands of patients and takes at least two years to carry out. If the evidence shows that the drug is safe and effective in humans, the final step is to secure marketing approval from the Food and Drug Administration.

Another complication in this process I have been describing is the development of a suitable dosage form—one that

will permit the patient's body to absorb and utilize the active ingredient of the drug product. Work on this task begins fairly early in the process and requires the solving of a number of difficult technical problems.

* * *

I have emphasized the role of our industry in making a medicine available to the public because I would like the Subcommittee members to bear this point in mind as I now discuss the kind of patent policy I believe is needed to stimulate drug research—and to bring new medicines to the American people.

First of all, is it not true that the keystone of a sound policy as to government patents is to lay out a system which will produce the maximum utilization of inventions for the benefit of the public?

With "maximum utilization by the public" as the criterion, certain facts would appear pertinent.

1. Our American patent system is almost universally considered as being one of the most potent factors producing this country's industrial and scientific progress. It is based on the premise that the granting of marketing exclusivity for a given period of time is the best way of bringing new inventions into widespread use.

2. If this reasoning is sound, it is obvious that it should apply to the health field to the same extent that it applies to other fields. A new chemical compound will not help a sick person until it has been made into a medicine, and the whole reason for medical research is to help cure sick people.

3. Any patent legislation or any government patent policy that discourages collaboration between university scientists and drug companies is likely to slow up the development of new medicines.

* * *

As I mentioned earlier, the discovery of new medicines should, in the public interest, more and more involve the collaboration of university scientists and drug companies. For effective collaboration, both the university scientist and the drug company must have incentives—first to invent the compound and then to make the speculative investment required to turn it into a medicine. These incentives have traditionally been provided by our patent system. Indeed, the encouragement to invent—to "promote the progress of science"—is the purpose of the patent system. It seems contradictory to remove this incentive from the health field.

In my opinion, the existing government patent policy for the health field discriminates against academic-industrial collaboration by providing that, if government money is given to the university scientist, the government takes the patent rights. With rare exceptions, the university, the university scientist or the drug firm (which may have spent many hundreds of thousands of dollars for development) do not get any exclusive rights.

I can illustrate the complications that now arise under present patent policy by another example from our own experience. Back in 1959, my company began working with a university scientist who had been studying certain steroids for several years under a Public Health Service grant of $26,000 a year.

We have a program in the field of atherosclerosis and heart disease, and were determining the effect of compounds on blood cholesterol. This effect was not one of those specifically under investigation by the university scientist nor was it contemplated in the PHS grant. We were able to demonstrate through exhaustive tests in animals that the compound in question lowers the cholesterol level of blood without the side effects which, in the past, have limited other drugs used for this medical purpose. We are now at the point where the compound should be given to humans

for preliminary evaluation. But to date we have been unable to conclude an agreement that will give us reasonable exclusive rights, even though our investment in development already amounts to approximately $250,000 and may well amount to a couple of million dollars before the compound becomes a medicine for human use. We are continuing to negotiate.

The situation I have just described will increasingly be a problem in the future as more and more federal money is contributed through grants to hospitals, universities, medical schools and medical centers. Can drug firms collaborate with these institutions if industry is denied a reasonable equity in resulting discoveries? My own opinion is that drug firms will have to shy away from such collaborative research under existing government patent policy—as indeed they are already doing.

I therefore urge the Subcommittee, in considering legislation, to aim at providing the maximum—not the minimum—incentives for medical discovery to university scientists and to the drug industry. I urge this because I sincerely believe that such a policy is in the national interest and that it will bring the greatest good to the American people. A very clear principle is involved. Our patent system stimulates the discovery of new and useful products and processes, and its incentive should not be reduced or denied in the field of health.

* * *

I would like to suggest the following principles, which, in my opinion, should be considered in determining the form of any new patent legislation involving inventions with federal support.

1. Where a scientist working in a nonprofit institution and supported by government funds discovers a new compound that may have medicinal use, the patent rights should belong to his institution, subject to certain government-retained controls.

2. The nonprofit institution should have the right to negotiate with industry to carry out screening, testing and development work, and may further negotiate a royalty-bearing license with industry upon such terms as they may agree upon—subject again to government-retained controls. The license agreement may also define the respective rights of the nonprofit institution and the industrial concern as to new uses and related development and improvements which may result from collaborative work between them.

3. In view of the substantial expenses which must be borne by the industrial concern to develop and test the compound—and considering that the royalties will accrue to the institution and be available for further research (with such reward to the individual inventor as the institution deems appropriate)—the license to the concern must be attractive enough to invite its participation in this research and development.

We have given considerable thought to specific amendments to S. 1809 and plan to submit them to the Subcommittee at the earliest possible date.

That concludes my comments, Mr. Chairman. Thank you for your courtesy.

APPENDIX F

STERLING DRUG INC.
90 PARK AVENUE, NEW YORK, N. Y. 10016

July 19, 1965

Mr. Ellsworth H. Mosher, Chairman
Chemical Practice Committee
American Patent Law Association
Suite 300 Munsey Building
Washington, D. C. 20004

Re: Brenner, Commissioner of Patents

v.

Andrew John Manson

(No. 58 in the Supreme Court of
the United States)

Dear Mr. Mosher:

In behalf of the respondent in the above-entitled cause, we hereby consent to your filing in the United States Supreme Court an *amicus curiae* brief on behalf of the American Patent Law Association.

Very truly yours,

STERLING DRUG INC.

DAVID RASCH
Vice President

APPENDIX G

OFFICE OF THE SOLICITOR GENERAL
WASHINGTON, D.C. 20530

August 9, 1965

W. Brown Morton, Jr., Esq.
President
American Patent Law Association
425 13th Street, N.W.
Washington, D. C. 20004

Re: Brenner v. Manson (No. 58)

Dear Mr. Morton:

In reply to your letter of August 5, I am pleased to advise you that the government consents to the filing of a brief *amicus curiae* by the American Patent Law Association in the above-captioned case.

Sincerely,

RALPH S. SPRITZER
Ralph S. Spritzer
Acting Solicitor General

SUPREME COURT OF THE UNITED STATES

No. 58.—October Term, 1965.

Edward J. Brenner, Commissioner of Patents, Petitioner, *v.* Andrew John Manson.	On Writ of Certiorari to the United States Court of Customs and Patent Appeals.

[March 21, 1966.]

Mr. Justice Fortas delivered the opinion of the Court.

This case presents two questions of importance to the administration of the patent laws: First, whether this Court has certiorari jurisdiction, upon petition of the Commissioner of Patents, to review decisions of the Court of Customs and Patent Appeals; and second, whether the practical utility of the compound produced by a chemical process is an essential element in establishing a prima facie case for the patentability of the process. The facts are as follows:

In December 1957, Howard Ringold and George Rosenkranz applied for a patent on an allegedly novel process for making certain known steroids.[1] They claimed priority as of December 17, 1956, the date on which they had filed for a Mexican patent. United States Patent No. 2,908,693 issued late in 1959.

In January 1960, respondent Manson, a chemist engaged in steroid research, filed an application to patent

[1] The applicants described the products of their process as "2-methyl dihydrotestosterone derivatives and esters thereof as well as 2-methyl dihydrotestosterone derivatives having a C-17 lower alkyl group. The products of the process of the present invention have a useful high anabolic-androgenic ratio and are especially valuable for treatment of those ailments where an anabolic or antiestrogenic effect together with a lesser androgenic effect is desired."

precisely the same process described by Ringold and Rosenkranz. He asserted that it was he who had discovered the process, and that he had done so before December 17, 1956. Accordingly, he requested that an "interference" be declared in order to try out the issue of priority between his claim and that of Ringold and Rosenkranz.[2]

A Patent Office examiner denied Manson's application, and the denial was affirmed by the Board of Appeals within the Patent Office. The ground for rejection was the failure "to disclose any utility for" the chemical compound produced by the process. Letter of Examiner, dated May 24, 1960. This omission was not cured, in the opinion of the Patent Office, by Manson's reference to an article in the November 1956 issue of the Journal of Organic Chemistry, 21 J. Org. Chem. 1333–1335, which revealed that steroids of a class which in-

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[2] 35 U. S. C. § 135 (1964 ed.) provides: "Whenever an application is made for a patent which, in the opinion of the Commissioner, would interfere with any pending application, or with any unexpired patent, he shall give notice thereof . . . . The question of priority of invention shall be determined by a board of patent interferences . . . whose decision, if adverse to the claim of an applicant, shall constitute the final refusal by the Patent Office of the claims involved, and the Commissioner may issue a patent to the applicant who is adjudged the prior inventor. . . ."

Patent Office Rule 204 (b), 37 CFR § 1.204 (b), provides: "When the filing date or effective filing date of an applicant is subsequent to the filing date of a patentee, the applicant, before an interference will be declared, shall file an affidavit that he made the invention in controversy in this country, before the filing date of the patentee . . . and, when required, the applicant shall file an affidavit . . . setting forth facts which would prima facie entitle him to an award of priority relative to the filing date of the patentee."

Judge Thurman Arnold has provided an irreverent description of the way patent claims, including "interferences," are presented to the Patent Office. See *Monsanto Chemical Co.* v. *Coe,* 145 F. 2d 18 (C. A. D. C. Cir.).

cluded the compound in question were undergoing screening for possible tumor-inhibiting effects in mice, and that a homologue [3] adjacent to Manson's steroid, had proven effective in that role. Said the Board of Appeals, "It is our view that the statutory requirement of usefulness of a product cannot be presumed merely because it happens to be closely related to another compound which is shown to be useful."

The Court of Customs and Patent Appeals (hereinafter CCPA) reversed, Chief Judge Worley dissenting. 52 C. C. P. A. (Pat.) 739, —, 333 F. 2d 234, 237–238. The court held that Manson was entitled to a declaration of interference since "where a claimed process produces a known product it is not necessary to show utility for the product," so long as the product "is not alleged to be detrimental to the public interest." Certiorari was granted, 380 U. S. 971, to resolve this running dispute over what constitutes "utility" in chemical process claims,[4] as well as to answer the question concerning our certiorari jurisdiction.

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[3] "A homologous series is a family of chemically related compounds, the composition of which varies from member to member by CH_2 (one atom of carbon and two atoms of hydrogen). . . . Chemists knowing the properties of one member of a series would in general know what to expect in adjacent members." *Application of Henze,* 37 C. C. P. A. (Pat.) 1009, 1014, 181 F. 2d 196, 200–201. See also *In re Hass,* 31 C. C. P. A. (Pat.) 903, 907, 141 F. 2d 122, 125; *Application of Norris,* 37 C. C. P. A. (Pat.) 876, 179 F. 2d 970; *Application of Jones,* 32 C. C. P. A. (Pat.) 1029, 149 F. 2d 501. With respect to the inferior predictability of steroid homologues, see, *infra,* p. 13.

[4] In addition to the clear conflict between the Patent Office and the CCPA, there arguably exists one between the CCPA and the Court of Appeals for the District of Columbia. See *Petrocarbon Limited* v. *Watson,* 101 U. S. App. 214, 247 F. 2d 800, cert. denied, 355 U. S. 955. But see *Application of Szwarc,* 50 C. C. P. A. (Pat.) 1571, 1576–1583, 319 F. 2d 277, 282–286.

I.

Section 1256 of Title 28 U. S. C. (1964 ed.), enacted in 1948, provides that "Cases in the Court of Customs and Patent Appeals may be reviewed by the Supreme Court by writ of certiorari." This unqualified language would seem to foreclose any challenge to our jurisdiction in the present case. Both the Government[5] and the respondent urge that we have certiorari jurisdiction over patent decisions of the CCPA, although the latter would confine our jurisdiction to those petitions filed by dissatisfied applicants and would deny the Commissioner of Patents the right to seek certiorari.[6] This concert of opinion does not settle the basic question because jurisdiction cannot be conferred by consent of the parties. The doubt that does exist stems from a decision of this Court, rendered in January 1927, in *Postum Cereal Co.* v. *California Fig Nut Co.*, 272 U. S. 693, which has been widely interpreted as precluding jurisdiction over patent and trademark decisions of the CCPA.

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[5] The present case is the first in which the Government has taken the position that § 1256 confers jurisdiction upon this Court to review patent decisions in the CCPA. Prior to *Glidden Co.* v. *Zdanok*, 370 U. S. 530, the Government was of the view that the Court lacked jurisdiction. See, *e. g.*, the Brief in Opposition in *Dalton* v. *Marzall*, No. 87, O. T. 1951, cert. denied, 342 U. S. 818. After the decision in *Glidden*, discussed *infra*, at —, the Government conceded the issue was a close one. See, *e. g.*, Brief in Opposition in *In re Gruschwitz*, No. 579, O. T. 1963, cert. denied, 375 U. S. 967.

[6] We find no warrant for this curious limitation either in the statutory language or in the legislative history of § 1256. Nor do we find persuasive the circumstance that the Commissioner may not appeal adverse decisions of the Board of Appeals. 35 U. S. C. §§ 141, 142, and 145 (1964 ed.). As a member of the Board and the official responsible for selecting the membership of its panels, 35 U. S. C. § 7 (1964 ed.), it may be considered appropriate that the Commissioner be bound by Board determinations. No such consideration operates to prevent his seeking review of adverse decisions rendered by the CCPA.

Postum, however, was based upon a statutory scheme materially different from the present one. *Postum* involved a proceeding in the Patent Office to cancel a trademark. The Commissioner of Patents rejected the application. An appeal was taken to the then Court of Appeals for the District of Columbia, which in 1927 exercised the jurisdiction later transferred to the CCPA. Under the statutory arrangement in effect at the time, the judgment of the Court of Appeals was not definitive because it was not an order to the Patent Office determinative of the controversy. A subsequent bill in equity could be brought in the District Court and it was possible that a conflicting adjudication could thus be obtained. On this basis, the Court held that it could not review the decision of the Court of Appeals. It held that the conclusion of the Court of Appeals was an "administrative decision" rather than a "judicial judgment": "merely an instruction to the Commissioner of Patents by a court which is made part of the machinery of the Patent Office for administrative purposes." 272 U. S., at 698–699. Therefore, this Court concluded, the proceeding in the Court of Appeals—essentially administrative in nature—was neither case nor controversy within the meaning of Article III of the Constitution. Congress might confer such "administrative" tasks upon the courts of the District of Columbia, wrote Chief Justice Taft, but it could not empower this Court to participate therein.

Congress soon amended the statutory scheme. In March of 1927 it provided that an action in the District Court was to be alternative and not cumulative to appellate review, that it could not be maintained to overcome an adjudication in the Court of Appeals.[7] In 1929 Con-

[7] Act of March 2, 1927, c. 273, § 11, 44 Stat. 1335, 1336. See *Glidden Co.* v. *Zdanok, supra,* at 572–579; Kurland and Wolfson, Supreme Court Review of the Court of Customs and Patent Appeals, 18 Geo. Wash. L. Rev. 192 (1950). This remains the law. 35 U. S. C. §§ 141, 145.

gress transferred appellate jurisdiction over the Commissioner's decisions from the Court of Appeals to what had been the Court of Customs Appeals and was now styled the Court of Customs and Patent Appeals.[8] Whereas the Court of Appeals had been empowered to take additional evidence and to substitute its judgment for that of the Commissioner, the CCPA was confined to the record made in the Patent Office.[9] Compare *Federal Communications Comm'n* v. *Pottsville Broadcasting Co.*, 309 U. S. 134, 144–145. Despite these changes, however, *Postum* had acquired a life of its own. It continued to stand in the way of attempts to secure review here of CCPA decisions respecting the Commissioner of Patents. See, *e. g.*, *McBride* v. *Teeple*, 311 U. S. 649, denying certiorari for "want of jurisdiction" on the authority of *Postum*.[10]

This was the background against which Congress, in its 1948 codification of statutes pertaining to the judiciary, enacted § 1256, blandly providing in unqualified language for review on certiorari of "cases in the Court of Customs and Patent Appeals." Nothing in the legislative materials relating to the statute, except its language, is of assistance to us in the resolution of the present problem: Did the statutory changes which followed *Postum* mean that a patent decision by the CCPA was a "judicial" determination reviewable by this Court under Article III? And, if so, was § 1256 intended to create such jurisdiction?

Assistance came with the 1958 revision of the Judicial Code. Congress there declared the CCPA "a court

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[8] Act of March 2, 1929, c. 488, 45 Stat. 1475.

[9] See Kurland and Wolfson, *op. cit. supra*, n. 7, at 196.

[10] Apart from *Postum*, until enactment of § 1256 in 1948 there existed no statutory basis for jurisdiction in these cases. See Robertson and Kirkham, Jurisdiction of the Supreme Court of the United States, § 251 (Wolfson and Kurland ed. 1951).

established under article III . . . ," that is, a constitutional court exercising judicial rather than administrative power. 28 U. S. C. § 211 (1964 ed.). In 1962 this Court addressed itself to the nature and status of the CCPA. *Glidden Co.* v. *Zdanok,* 370 U. S. 530, raised the question whether a judge of the CCPA was an Article III judge, capable of exercising federal judicial power. In answering that question in the affirmative, MR. JUSTICE HARLAN'S opinion, for three of the seven Justices participating, expressly left open the question whether § 1256 conferred certiorari jurisdiction over patent and trademark cases decided in the CCPA, 370 U. S., at 578 n. 49. It suggested, however, that *Postum* might be nothing more than a museum piece. The opinion noted that *Postum* "must be taken to be limited to the statutory scheme in existence before" 1929. 370 U. S., at 579. The concurring opinion of MR. JUSTICE CLARK, in which THE CHIEF JUSTICE joined, did not reflect any difference on this point.

Thus, the decision sought to be reviewed is that of an Article III court. It is "judicial" in character. It is not merely an instruction to the Commissioner or part of the "administrative machinery" of the Patent Office. It is final and binding in the usual sense.[11] In sum, *Postum* has no vitality in the present setting, and there remains no constitutional bar to our jurisdiction.

Having arrived at this conclusion, we have no difficulty in giving full force and effect to the generality of

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[11] This is not to say that a CCPA determination that an applicant is entitled to a patent precludes a contrary result in a subsequent infringement suit, any more than issuance of a patent by the Patent Office or the decision in an earlier infringement action against a different "infringer" has that effect. See, *e. g., Graham* v. *John Deere Co.,* 382 U. S. —, —. We review decisions of the District Court under 35 U. S. C. § 145 although these are subject to the same measure of readjudication in infringement suits. See *Hoover Co.* v. *Coe,* 325 U. S. 79.

the language in § 1256. It would be entirely arbitrary for us to assume, despite the statutory language, that Congress in 1948 intended to enshrine *Postum*—dependent as it was upon a statutory scheme fundamentally altered in 1927 and 1929—into a hidden exception to the sweep of § 1256. The contrary is more plausible: that by using broad and unqualified language, Congress intended our certiorari jurisdiction over CCPA cases to be as broad as the Constitution permits.

This conclusion is reinforced by reference to the anomalous consequences which would result were we to adopt a contrary view of § 1256. Determinations of the Patent Office may be challenged either by appeal to the CCPA or by suit instituted in the United States District Court for the District of Columbia. 35 U. S. C. § 145, 28 U. S. C. § 1542 (1964 ed.). Where the latter route is elected, the decision obtained may be reviewed in the Court of Appeals for the District of Columbia Circuit, and ultimately in this Court upon writ of certiorari. *Hoover Co.* v. *Coe*, 325 U. S. 79. It would be strange indeed if corresponding certiorari jurisdiction did not exist where the alternative route was elected. Were that so, in the event of conflict between the CCPA and the courts of the District of Columbia, resolution by this Court would be achievable only if the litigants chose to proceed through the latter. Obviously, the orderly administration both of our certiorari jurisdiction and of the patent laws requires that ultimate review be available in this Court, regardless of the route chosen by the litigants.

We therefore conclude that § 1256 authorizes the grant of certiorari in the present case. We now turn to the merits.[12]

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[12] Respondent and the *amicus curiae* take a different view than does the Government of precisely what the issue on the merits is. They argue that the issue of "patentability" is not properly before us, that the issue actually presented is whether the Primary

II.

Our starting point is the proposition, neither disputed nor disputable, that one may patent only that which is "useful." In *Graham* v. *John Deere Co.*, 382 U. S. —, —, we have reviewed the history of the requisites of patentability, and it need not be repeated here. Suffice it to say that the concept of utility has maintained a central place in all of our patent legislation, beginning with

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Examiner in the Patent Office has authority under Rule 204 (b) himself to evaluate the sufficiency of affidavits submitted under that Rule.

Both the Board of Appeals and the CCPA rejected this view and focused instead on the question of what averments satisfy the statutory requirement that a claimed chemical process be "useful." We agree. First, the issue of "patentability" cannot be foreclosed by the circumstance that the Patent Office—which, according to counsel for respondent, processes some 1,800 claims and issues 700 patents each week—has already issued a patent to Ringold and Rosenkranz who asserted in their claim that their process yielded useful products. See note 1, *supra*. Second, there is no basis for the proposition that even where an applicant for an interference presents a claim which on its face is unpatentable, a complicated and frequently lengthy factual inquiry into priority of invention must inexorably take place. On the contrary, Rule 201 (a), 37 CFR § 1.201 (a), defines an interference proceeding as one involving "two or more parties claiming substantially the same *patentable* invention and may be instituted as soon as it is determined that common *patentable* subject matter is claimed . . . ." (Emphasis supplied.) See *Application of Rogoff*, 46 C. C. P. A. (Pat.) 733, 739, 261 F. 2d 601, 606: "The question as to patentability of claims to an applicant must be determined before any question of interference arises and claims otherwise unpatentable to an applicant cannot be allowed merely in order to set up an interference." See also *Wirkler* v. *Perkins*, 44 C. C. P. A. (Pat.) 1005, 1008, 245 F. 2d 502, 504. Cf. *Glass* v. *De Roo*, 44 C. C. P. A. (Pat.) 723, 239 F. 2d 402.

The current version of Rule 203 (a), 37 CFR § 1.203 (a), makes it explicit that the examiner, "before the declaration of an interference," must determine the patentability of the claim as to each party. See also Rule 237, 37 CFR § 1.237.

the first patent law in 1790[13] and culminating in the present law's provision that

> "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."[14]

As is so often the case, however, a simple, everyday word can be pregnant with ambiguity when applied to the facts of life. That this is so is demonstrated by the present conflict between the Patent Office and the CCPA over how the test is to be applied to a chemical process which yields an already known product whose utility—other than as a possible object of scientific inquiry—has not yet been evidenced. It was not long ago that agency and court seemed of one mind on the question. In *Application of Bremner*, 37 C. C. P. A. (Pat.) 1032, 1034, 182 F. 2d 216, 217, the court affirmed rejection by the Patent Office of both process and product claims. It noted that "no use for the products claimed to be developed by the processes had been shown in the specification." It held that "It was never intended that a patent be granted upon a product, or a process producing a product, unless such product be useful." Nor was this new doctrine in the court. See *Thomas* v. *Michael*, 35 C. C. P. A. (Pat.) 1036, 1038–1039, 166 F. 2d 944, 946–947.

The Patent Office has remained steadfast in this view. The CCPA, however, has moved sharply away from *Bremner*. The trend began in *Application of Nelson*, 47 C. C. P. A. (Pat.) 1031, 280 F. 2d 172. There, the court

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[13] See Act of April 10, 1790, c. 7, 1 Stat. 109; Act of Feb. 21, 1793, c. 11, 1 Stat. 318; Act of July 4, 1836, c. 357, 5 Stat. 117; Act of July 8, 1870, c. 230, 16 Stat. 198; Rev. Stat. (1874) § 4886.

[14] 35 U. S. C. § 101 (1964 ed.).

reversed the Patent Office's rejection of a claim on a process yielding chemical intermediates "useful to chemists doing research on steroids," despite the absence of evidence that any of the steroids thus ultimately produced were themselves "useful." The trend has accelerated,[15] culminating in the present case where the court held it sufficient that a process produces the result intended and is not "detrimental to the public interest." 52 C. C. P. A. (Pat.), at —, 333 F. 2d, at 238.

It is not remarkable that differences arise as to how the test of usefulness is to be applied to chemical processes. Even if we knew precisely what Congress meant in 1790 when it devised the "new and useful" phraseology and in subsequent re-enactments of the test, we should have difficulty in applying it in the context of contemporary chemistry where research is as comprehensive as man's grasp and where little or nothing is wholly beyond the pale of "utility"—if that word is given its broadest reach.

Petitioner does not—at least, in the first instance—rest upon the extreme proposition, advanced by the court below, that a novel chemical process is patentable so long as it yields the intended product[16] and so long as the

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[15] Thus, in *Application of Wilke*, 50 C. C. P. A. (Pat.) 964, 314 F. 2d 558, the court reversed a Patent Office denial of a process claim, holding that 35 U. S. C. § 112 (1964 ed.) was satisfied even though the specification recited only the manner in which the process was to be used and not any use for the products thereby yielded. See also *Application of Adams*, 50 C. C. P. A. (Pat.) 1185, 316 F. 2d 476.

In *Application of Szwarc*, 50 C. C. P. A. (Pat.) 1571, 319 F. 2d 277, the court acknowledged that its view of the law respecting utility of chemical processes had changed since *Bremner*. See generally, Note, The Utility Requirement in the Patent Law, 53 Geo. L. J. 154, 175–181 (1964).

[16] Respondent couches the issue in terms of whether the process yields a "known" product. We fail to see the relevance of the fact that the product is "known," save to the extent that references

product is not itself "detrimental." Nor does he commit the outcome of his claim to the slightly more conventional proposition that any process is "useful" within the meaning of § 101 if it produces a compound whose potential usefulness is under investigation by serious scientific researchers, although he urges this position, too, as an alternative basis for affirming the decision of the CCPA. Rather, he begins with the much more orthodox argument that his process has a specific utility which would entitle him to a declaration of interference even under the Patent Office's reading of § 101. The claim is that the supporting affidavits filed pursuant to Rule 204 (b), by reference to Ringold's 1956 article, reveal that an adjacent homologue of the steroid yielded by his process has been demonstrated to have tumor-inhibiting effects in mice, and that this discloses the requisite utility. We do not accept any of these theories as an adequate basis for overriding the determination of the Patent Office that the "utility" requirement has not been met.

Even on the assumption that the process would be patentable were respondent to show that the steroid produced had a tumor-inhibiting effect in mice,[17] we would not overrule the Patent Office finding that respondent has

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to a compound in scientific literature suggest that it might be a subject of interest and possible investigation.

[17] In light of our disposition of the case, we express no view as to the patentability of a process whose sole demonstrated utility is to yield a product shown to inhibit the growth of tumors in laboratory animals. See *Application of Hitchings*, 52 C. C. P. A. (Pat.) —, 342 F. 2d 80; *Application of Bergel*, 48 C. C. P. A. (Pat.) 1102, 292 F. 2d 955; cf. *Application of Dodson*, 48 C. C. P. A. (Pat.) 1125, 292 F. 2d 943; *Application of Krimmel*, 48 C. C. P. A. (Pat.) 1116, 292 F. 2d 948. For a Patent Office view, see Marcus, The Patent Office and Pharmaceutical Invention, 47 J. P. O. S. 669, 673–676 (1965).

not made such a showing. The Patent Office held that, despite the reference to the adjacent homologue, respondent's papers did not disclose a sufficient likelihood that the steroid yielded by his process would have similar tumor-inhibiting characteristics. Indeed, respondent himself recognized that the presumption that adjacent homologues have the same utility [18] has been challenged in the steroid field because of "a greater known unpredictability of compounds in that field." [19] In these circumstances and in this technical area, we would not overturn the finding of the Primary Examiner, affirmed by the Board of Appeals and not challenged by the CCPA.

The second and third points of respondent's argument present issues of much importance. Is a chemical process "useful" within the meaning of § 101 either (1) because it works—*i. e.*, produces the intended product? or (2) because the compound yielded belongs to a class of compounds now the subject of serious scientific investigation? These contentions present the basic problem for our adjudication. Since we find no specific assistance in the legislative materials underlying § 101, we are remitted to an analysis of the problem in light of the general intent of Congress, the purposes of the patent system, and the implications of a decision one way or the other.

In support of his plea that we attenuate the requirement of "utility," respondent relies upon Justice Story's

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[18] See n. 3, *supra*.

[19] See respondent's letter requesting amendment, dated July 21, 1960, Record, pp. 20–23. See also *Application of Adams*, 50 C. C. P. A. (Pat.) 1185, 1190, 316 F. 2d 476, 479–480 (dissenting opinion). In the present case, the Board of Appeals found support in the Ringold article itself for the view that "minor changes in the structure of a steroid may produce profound changes in its biological activity." Record, p. 52.

well-known statement that a "useful" invention is one "which may be applied to a beneficial use in society, in contradistinction to an invention injurious to the morals, health, or good order of society, or frivolous and insignificant" [20]—and upon the assertion that to do so would encourage inventors of new processes to publicize the event for the benefit of the entire scientific community, thus widening the search for uses and increasing the fund of scientific knowledge. Justice Story's language sheds little light on our subject. Narrowly read, it does no more than compel us to decide whether the invention in question is "frivolous and insignificant"—a query no easier of application than the one built into the statute. Read more broadly, so as to allow the patenting of any invention not positively harmful to society, it places such a special meaning on the word "useful" that we cannot accept it in the absence of evidence that Congress so intended. There are, after all, many things in this world which may not be considered "useful" but which, nevertheless, are totally without a capacity for harm.

It is true, of course, that one of the purposes of the patent system is to encourage dissemination of information concerning discoveries and inventions.[21] And it may be that inability to patent a process to some extent discourages disclosure and leads to greater secrecy than would otherwise be the case. The inventor of the process, or the corporate organization by which he is employed, has some incentive to keep the invention

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[20] Appendix, Note on the Patent Laws, 3 Wheat. 13, 24. See also Justice Story's decisions on circuit in *Lowell* v. *Lewis*, 15 Fed. Cas. 1018 (No. 8568) (C. C. D. Mass.), and *Bedford* v. *Hunt*, 3 Fed. Cas. 37 (No. 1217) (C. C. D. Mass.).

[21] "As a reward for inventions and to encourage their disclosure, the United States offers a seventeen-year monopoly to an inventor who refrains from keeping his invention a trade secret." *Universal Oil Prods. Co.* v. *Globe Oil & Ref. Co.*, 322 U. S. 471, 484.

secret while uses for the product are searched out. However, in light of the highly developed art of drafting patent claims so that they disclose as little useful information as possible—while broadening the scope of the claim as widely as possible—the argument based upon the virtue of disclosure must be warily evaluated. Moreover, the pressure for secrecy is easily exaggerated, for if the inventor of a process cannot himself ascertain a "use" for that which his process yields, he has every incentive to make his invention known to those able to do so. Finally, how likely is disclosure of a patented process to spur research by others into the uses to which the product may be put? To the extent that the patentee has power to enforce his patent, there is little incentive for others to undertake a search for uses.

Whatever weight is attached to the value of encouraging disclosure and of inhibiting secrecy, we believe a more compelling consideration is that a process patent in the chemical field, which has not been developed and pointed to the degree of specific utility, creates a monopoly of knowledge which should be granted only if clearly commanded by the statute. Until the process claim has been reduced to production of a product shown to be useful, the metes and bounds of that monopoly are not capable of precise delineation. It may engross a vast, unknown, and perhaps unknowable area. Such a patent may confer power to block off whole areas of scientific development,[22] without compensating benefit to the public. The basic *quid pro quo* contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility. Unless and until a process is refined and developed to this point—where specific bene-

[22] See *Monsanto Chemical Co.* v. *Coe,* 145 F. 2d 18, 21–24 (C. A. D. C. Cir.).

fit exists in currently available form—there is insufficient justification for permitting an applicant to engross what may prove to be a broad field.

These arguments for and against the patentability of a process which either has no known use or is useful only in the sense that it may be an object of scientific research would apply equally to the patenting of the product produced by the process. Respondent appears to concede that with respect to a product, as opposed to a process, Congress has struck the balance on the side of non-patentability unless "utility" is shown. Indeed, the decisions of the CCPA are in accord with the view that a product may not be patented absent a showing of utility greater than any adduced in the present case.[23] We find absolutely no warrant for the proposition that although Congress intended that no patent be granted on a chemical compound whose sole "utility" consists of its potential role as an object of use-testing, a different set of rules was meant to apply to the process which yielded the unpatentable product.[24] That proposition seems to us little more than an attempt to evade the impact of the rules which concededly govern patentability of the product itself.

This is not to say that we mean to disparage the importance of contributions to the fund of scientific infor-

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[23] See, *e. g.*, the decision below, 52 C. C. P. A. (Pat.), at —, 333 F. 2d, at 237. See also *Application of Bergel*, 48 C. C. P. A. (Pat.), at 1105, 292 F. 2d, at 958. Cf. *Application of Nelson*, 47 C. C. P. A. (Pat.), at 1043–1044, 280 F. 2d, at 180–181; *Application of Folkers*, 52 C. C. P. A. (Pat.) 1269, 344 F. 2d 970.

[24] The committee reports which preceded enactment of the 1952 revision of the patent laws disclose no intention to create such a dichotomy, and in fact provide some evidence that the contrary was assumed. Sen. Rep. No. 1979, Committee on the Judiciary, 82d Cong., 2d Sess., 5, 17; H. R. Rep. No. 1923, Committee of the Judiciary, 82d Cong., 2d Sess., 6, 17. Cf. Hoxie, A Patent Attorney's View, 47 J. P. O. S. 630, 636 (1965).

mation short of the invention of something "useful," or that we are blind to the prospect that what now seems without "use" may tomorrow command the grateful attention of the public. But a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion. "[A] patent system must be related to the world of commerce rather than to the realm of philosophy . . . ." [25]

The judgment of the CCPA is

Reversed.

MR. JUSTICE DOUGLAS, while acquiescing in Part I of the Court's opinion, dissents on the merits of the controversy for substantially the reasons stated by MR. JUSTICE HARLAN.

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[25] *Application of Ruschig,* 52 C. C. P. A. (Pat.) 1238, —, 343 F. 2d 965, 970 (Rich, J.). See also, *Katz* v. *Horni Signal Mfg. Corp.,* 145 F. 2d 961 (C. A. 2d Cir.).

SUPREME COURT OF THE UNITED STATES

No. 58.—October Term, 1965.

Edward J. Brenner, Commissioner of Patents, Petitioner, *v.* Andrew John Manson.	On Writ of Certiorari to the United States Court of Customs and Patent Appeals.

[March 21, 1966.]

Mr. Justice Harlan, concurring in part and dissenting in part.

While I join the Court's opinion on the issue of certiorari jurisdiction, I cannot agree with its resolution of the important question of patentability.

Respondent has contended that a workable chemical process, which is both new and sufficiently nonobvious to satisfy the patent statute, is by its existence alone a contribution to chemistry and "useful" as the statute employs that term.[1] Certainly this reading of "useful" in the statute is within the scope of the constitutional grant, which states only that "[t]o promote the Progress of Science and useful Arts," the exclusive right to "Writings and Discoveries" may be secured for limited times to those who produce them. Art. I, § 8. Yet the patent statute is somewhat differently worded and is on its face open both to respondent's construction and to the contrary reading given it by the Court. In the absence of legislative history on this issue, we are thrown back on policy and practice. Because I believe that the Court's policy arguments are not convincing and that past practice favors the respondent, I would reject the narrow definition of "useful" and uphold the judgment

[1] The statute in pertinent part is set out in the Court's opinion, p. 10, *ante*.

of the Court of Customs and Patent Appeals (hereafter CCPA).

The Court's opinion sets out about half a dozen reasons in support of its interpretation. Several of these arguments seem to me to have almost no force. For instance, it is suggested that "[u]ntil the process claim has been reduced to production of a product shown to be useful, the metes and bounds of that monopoly are not capable of precise delineation" (p. 15, *ante*) and "[i]t may engross a vast, unknown, and perhaps unknowable area" (p. 15, *ante*). I fail to see the relevance of these assertions; process claims are not disallowed because the products they produce may be of "vast" importance nor, in any event, does advance knowledge of a specific product use provide much safeguard on this score or fix "metes and bounds" precisely since a hundred more uses may be found after a patent is granted and greatly enhance its value.

The further argument that an established product use is part of "[t]he basic *quid pro quo*" (p. 15, *ante*) for the patent or is the requisite "successful conclusion" (p. 17, *ante*) of the inventor's search appears to beg the very question whether the process is "useful" simply because it facilitates further research into possible product uses. The same infirmity seems to inhere in the Court's argument that chemical products lacking immediate utility cannot be distinguished for present purposes from the processes which create them, that respondent appears to concede and the CCPA holds that the products are nonpatentable, and that therefore the processes are nonpatentable. Assuming that the two classes cannot be distinguished, a point not adequately considered in the briefs, and assuming further that the CCPA has firmly held such products non-

patentable,[2] this permits us to conclude only that the CCPA is wrong either as to the products or as to the processes and affords no basis for deciding whether both or neither should be patentable absent a specific product use.

More to the point, I think, are the Court's remaining, prudential arguments against patentability: namely, that disclosure induced by allowing a patent is partly undercut by patent-application drafting techniques, that disclosure may occur without granting a patent, and that a patent will discourage others from inventing uses for the product. How far opaque drafting may lessen the public benefits resulting from the issuance of a patent is not shown by any evidence in this case but, more important, the argument operates against all patents and gives no reason for singling out the class involved here. The thought that these inventions may be more likely than most to be disclosed even if patents are not allowed may have more force; but while empirical study of the industry might reveal that chemical researchers would behave in this fashion, the abstractly logical choice for them seems to me to maintain secrecy until a product use can be discovered. As to discouraging the search by others for product uses, there is no doubt this risk exists but the price paid for any patent is that research on other uses or improvements may be hampered because the original patentee will reap much of the reward. From

[2] Any concession by respondent would hardly be controlling on an issue of this general importance, but I am less clear than the Court that such a concession exists. See, *e. g.*, Brief for Respondent, p. 53. As to the CCPA, it is quite true that that court purports in the very case under review and in others to distinguish product patents, although its actual practice may be somewhat less firm. See *Application of Adams*, 50 C. C. P. A. (Pat.) 1185, 316 F. 2d 476, *Application of Nelson*, 47 C. C. P. A. (Pat.) 1031, 280 F. 2d 172.

the standpoint of the public interest the Constitution seems to have resolved that choice in favor of patentability.

What I find most troubling about the result reached by the Court is the impact it may have on chemical research. Chemistry is a highly interrelated field and a tangible benefit for society may be the outcome of a number of different discoveries, one discovery building upon the next. To encourage one chemist or research facility to invent and disseminate new processes and products may be vital to progress, although the product or process be without "utility" as the Court defines the term, because that discovery permits someone else to take a further but perhaps less difficult step leading to a commercially useful item. In my view, our awareness in this age of the importance of achieving and publicizing basic research should lead this Court to resolve uncertainties in its favor and uphold the respondent's position in this case.

This position is strengthened, I think, by what appears to have been the practice of the Patent Office during most of this century. While available proof is not conclusive, the commentators seem to be in agreement that until *Application of Bremner,* 37 C. C. P. A. (Pat.) 1032, 182 F. 2d 216, in 1950, chemical patent applications were commonly granted although no resulting end use was stated or the statement was in extremely broad terms.[3] Taking this to be true, *Bremner* represented

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[3] See, *e. g.,* the statement of a Patent Office Examiner-in-Chief: "Until recently it was also rather common to get patents on chemical compounds in cases where no use was indicated for the claimed compounds or in which a very broad indication or suggestion as to use was included in the application. [*Bremner* and another later ruling] . . . have put an end to this practice." Wolffe, Adequacy of Disclosure as Regards Specific Embodiment and Use of Invention, XLI J. P. O. S. 61, 66 (1959). The Government's brief in this

a deviation from established practice which the CCPA has now sought to remedy in part only to find that the Patent Office does not want to return to the beaten track. If usefulness was typically regarded as inherent during a long and prolific period of chemical research and development in this country, surely this is added reason why the Court's result should not be adopted until Congress expressly mandates it, presumably on the basis of empirical data which this Court does not possess.

Fully recognizing that there is ample room for disagreement on this problem when, as here, it is reviewed in the abstract, I believe the decision below should be affirmed.

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case is in accord: "[I]t was apparently assumed by the Patent Office [prior to 1950] . . . that chemical compounds were necessarily useful . . . and that specific inquiry beyond the success of the process was therefore unnecessary . . . ." Brief for the United States, p. 25. See also Cohen & Schwartz, Do Chemical Intermediates Have Patentable Utility? 29 Geo. Wash. L. Rev. 87, 91 (1960); Note, Geo. L. J. 154, 183 (1964); 14 Am. U. L. Rev. 78 (1964).